



Pro Tools[®] Reference Guide

Version 10.3

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Part I: Introduction to Pro Tools

Chapter 1: Welcome to Pro Tools

Welcome to Pro Tools®, brought to you by Avid® Technology. Pro Tools integrates powerful multi-track digital audio and MIDI sequencing features, giving you everything you need to record, arrange, compose, edit, mix, and master professional quality audio and MIDI for music, video, film, and multimedia.

Pro Tools Documentation

Pro Tools documentation provides you with workflow and reference information to help you successfully use Pro Tools.

Help is installed automatically during Pro Tools installation and can be accessed from within Pro Tools.

PDF Versions of Guides and Read Mes are installed automatically during Pro Tools installation. The main guides can be accessed from within Pro Tools. Additional documentation is available in the Pro Tools Documentation folder.

To view or print PDFs, you can use Adobe Reader or Apple Preview (Mac only).

Print Versions of Documentation are included with some Pro Tools software and hardware. Examples include Quick Setups and Installation guides.

Print-on-demand copies of the Pro Tools Reference Guide and some of the other guides in the Pro Tools guide set can be purchased separately from Avid (www.avid.com).

Launching Pro Tools Help

Pro Tools Help provides quick access to workflows and reference information while Pro Tools is open. Built-in search capabilities and an index are included to better support your Help needs.

To launch Help in Pro Tools:

- Choose Help > Pro Tools Help.



For more information, see Chapter 4, “Using Help.”

Accessing Guides in Pro Tools

PDF (Portable Document Format) versions of the main Pro Tools guides are accessible from the Pro Tools Help menu.

To access guides in Pro Tools:

- Choose Help, then a guide name.

Guides Accessible in Pro Tools

The following guides are available from the Pro Tools Help menu:

- Audio Plug-Ins Guide
- Pro Tools Reference Guide
- Pro Tools Shortcuts

For information on these guides, see “Pro Tools Documentation in the Documentation Folder” on page 4.

Accessing Pro Tools Guides in the Documentation Folder

PDF (Portable Document Format) versions of many Pro Tools guides are installed with Pro Tools. They are accessible from the Pro Tools Documentation folder.

To access guides in Pro Tools Documentation folder:

- 1 Locate the Documentation folder on your hard drive.
 - On Mac, go to Applications/Avid/Documentation.
 - On Windows, go to All Programs/Pro Tools/Documentation.
- 2 Open the subfolder that has the documentation you want.
- 3 Double-click the PDF you want to view.

For information on guides in the Documentation folder, see “Pro Tools Documentation in the Documentation Folder” on page 4.

Pro Tools Documentation in the Documentation Folder

Pro Tools guides and Read Mes in the Documentation folder are located in product-based subfolders, as follows:

Control Surfaces

C|24 Guide Supports Avid’s C|24™ 24-channel control surface for Pro Tools systems.

Command|8 Guide Supports Avid’s compact Command|8® control surface for Pro Tools and other supported Avid systems.

D-Command Guide Supports D-Command® work-surface for Avid ICON systems.

D-Control Guide Supports D-Control™ work-surface for Avid ICON systems.

Pro Tools EUCON Guide Provides information about setting up Pro Tools for use with EuControl software and a EUCON™-compatible controller.

Hardware & Peripherals

003 Family User Guide Provides installation and operation information for 003®, 003+, and 003 Rack Pro Tools hardware.

192 Digital I/O Guide Provides information about 192 Digital I/O™ audio interfaces for Pro Tools|HD systems.

192 I/O Guide Provides information about 192 I/O™ audio interfaces for Pro Tools|HD systems.

96 I/O Guide Provides information about 96 I/O™ audio interfaces for Avid HDX, Pro Tools|HD systems.

96i I/O Guide Provides information about 96i I/O™ audio interfaces for Pro Tools|HD systems.

Avid DigiTest Guide Provides information about using DigiTest to troubleshoot your Avid HDX, Pro Tools|HD, or HD Native hardware.

Expanded Systems Guide Provides instructions for expanding Pro Tools|HD systems with additional Pro Tools|HD cards and audio interfaces, with or without an expansion chassis.

HD IO Guide Provides a hardware overview, as well as detailed information for installing and configuring HD I/O audio interfaces for use with HDX, Pro Tools|HD, and HD Native hardware.

HD MADI Guide Provides a hardware overview, as well as detailed information for installing and configuring HD MADI audio interfaces for use with HDX, Pro Tools|HD, and HD Native hardware.

HD Native Install Guide Provides hardware installation instructions for HD Native PCIe hardware.

HD Native Thunderbolt Guide Provides hardware installation instructions for HD Native Thunderbolt hardware.

HD OMNI Guide Provides a hardware overview, as well as detailed information for installing and configuring an HD OMNI audio interface for stand-alone use and for use with HDX, Pro Tools|HD, and HD Native hardware.

HD User Guide Provides hardware installation instructions for Pro Tools|HD hardware.

HDX Install Guide Provides hardware installation instructions for HDX hardware.

Mbox Mini User Guide Provides hardware installation and operation information for the Mbox® Mini audio interface.

Mbox Pro User Guide Provides hardware installation and operation information for the Mbox Pro audio interface.

Mbox User Guide Provides hardware installation and operation information for the Mbox audio interface (3rd generation).

PRE Guide Provides detailed information for installing, configuring, and using PRE™, both stand-alone and with Pro Tools.

SurroundPanner Option Guide Provides hardware installation and operation information for the JL Cooper Surround Panner for Pro Tools HD and Pro Tools with Complete Production Toolkit.

SYNC HD Guide Provides a hardware overview, as well as detailed information for installing and configuring the SYNC HD™ and SYNC I/O synchronization peripherals for stand-alone use and for use with HDX, Pro Tools|HD, and HD Native hardware.

Plug-Ins

Access Music Indigo Guide Provides detailed information for installing, authorizing, and using the Access Music Virus Indigo plug-in.

AIR Virtual Instruments Provides detailed information for installing, authorizing, and using A.I.R. Virtual Instrument plug-ins (Hybrid, Strike, Structure, Transfuser, and Velvet).

Aphex Plug-Ins Guide Provides detailed information for installing, authorizing, and using Aphex plug-ins.

Audio Plug-Ins Guide Describes the plug-ins included free with Pro Tools, as well as additional plug-ins available for purchase separately.

Dolby Surround Tools Provides detailed information for installing, authorizing, and using Dolby Surround Tools plug-ins.

Drawmer Dynamics Guide Provides detailed information for installing, authorizing, and using Drawmer Dynamics plug-ins.

Focusrite Plug-Ins Guide Provides detailed information for installing, authorizing, and using Focusrite plug-ins.

MDW EQ Plug-In Guide Provides detailed information for installing, authorizing, and using the MDW EQ plug-in.

Sonic NoNOISE Guide Provides detailed information for installing, authorizing, and using Sonic NoNoise plug-ins.

SymphonicOrchestraSE Guide Provides detailed information for installing, authorizing, and using the Symphonic Orchestra SE sample content for Structure.

Pro Tools

Intro To Pro Tools Provides several introductory tutorials for using Pro Tools.

Pro Tools Installation Guide Provides detailed information for installing and authorizing Pro Tools software, as well as information for optimizing your operating system for Pro Tools.

Pro Tools Reference Guide Explains Pro Tools systems and software in detail.

Pro Tools Shortcuts Lists keyboard and Right-click shortcuts for Pro Tools, including those shown in Pro Tools menus.

Sync & Surround Concepts Provides an introduction to key synchronization, surround mixing, and monitoring concepts for Pro Tools users.

What's New In Pro Tools Provides an overview of new features in the current version of Pro Tools.

Read Mes

Read Me documents cover compatibility information, known issues and workarounds, and corrections to Pro Tools guides.

Toolkits & Options

Complete Production Toolkit Provides detailed information for installing, authorizing, and using the Complete Production Toolkit software option for Pro Tools.

Heat Option Guide Provides detailed information for installing, authorizing, and using the HEAT software option for Avid HDX and Pro Tools|HD systems.

MachineControl Guide Provides detailed information for installing and using the MachineControl™ option.

Satellite Link Guide Provides detailed information for authorizing and using the Satellite Link software option.

Video Satellite Guide Provides detailed information for authorizing and using the Video Satellite software option.

Video Satellite LE Guide Provides detailed information for authorizing and using the Video Satellite LE software option.

Video

Avid Video Peripherals Guide Describes the use of the Avid Mojo SDI video peripheral with Pro Tools systems.

Pro Tools Avid Interop Provides a list of web resources for interoperability with Pro Tools and Avid video editing systems.

Pro Tools Avid Interplay Describes how to use the Avid Interplay system to pass sequences and audio files back and forth between Avid video editing systems and Pro Tools HD audio editing and mixing systems.

Pro Tools Avid MediaNetwork Provides information on setting up and using a Pro Tools client on Avid Unity MediaNetwork networked storage systems.

Pro Tools ISIS Guide Provides information on setting up and using a Pro Tools client on Avid Unity ISIS networked storage systems.





Conventions Used in Pro Tools Documentation

Pro Tools documentation uses the following conventions to indicate menu choices, keyboard commands, and mouse commands:

Convention	Action
File > Save	Choose Save from the File menu
Control+N	Hold down the Control key and press the N key
Control-click	Hold down the Control key and click the mouse button
Right-click	Click with the right mouse button

The names of Commands, Options, and Settings that appear on-screen are in a different font.

The following symbols are used to highlight important information:

-  *User Tips are helpful hints for getting the most from your Pro Tools system.*
-  *Important Notices include information that could affect your Pro Tools session data or the performance of your Pro Tools system.*
-  *Shortcuts show you useful keyboard or mouse shortcuts.*
-  *Cross References point to related sections in this guide and other Avid documentation.*

System Requirements and Compatibility Information

Avid can only assure compatibility and provide support for hardware and software it has tested and approved.

For complete system requirements and a list of qualified computers, operating systems, hard drives, and third-party devices, visit:
www.avid.com/compatibility

About www.avid.com

The Avid website (www.avid.com) is your best online source for information to help you get the most out of your Pro Tools system. The following are just a few of the services and features available.

Product Registration Register your purchase online.

Support and Downloads Contact Avid Customer Success (technical support); download software updates and the latest online manuals; browse the Compatibility documents for system requirements; search the online Knowledge Base or join the worldwide Pro Tools community on the User Conference.

Training and Education Study on your own using courses available online or find out how you can learn in a classroom setting at a certified Pro Tools training center.

Products and Developers Learn about Avid products; download demo software or learn about our Development Partners and their plug-ins, applications, and hardware.

News and Events Get the latest news from Avid or sign up for a Pro Tools demo.

Chapter 2: Pro Tools Concepts

Before you begin to use Pro Tools, you may find it helpful to review Pro Tools concepts. These concepts are the foundation of Pro Tools operation and functionality.

Hard Disk Audio Recording

Hard disk recording is a *nonlinear* (or random access) medium—you can go immediately to any spot in a recording without having to rewind or fast forward.

This differs from tape-based recording, which is a *linear* medium—where you need to rewind or fast forward to hear a particular spot in a recording. To rearrange or repeat material in a linear system, you need to re-record it, or cut and splice it.

Nonlinear systems have several advantages. You can easily rearrange or repeat parts of a recording by making the hard disk read parts of the recording in a different order or multiple times. In addition, this re-arrangement is *nondestructive*, meaning that the original recorded material is not altered.

Pro Tools Nonlinear Editing

Pro Tools is a nonlinear recording editing system that lets you rearrange and mix recorded material nondestructively. Nonlinear editing simply means that you can cut, copy, paste, move, delete, trim, and otherwise rearrange any audio, MIDI, or video in the Pro Tools Edit window.

Nonlinear editing provides significant advantages over dubbing (re-recording), and cutting and splicing magnetic tape. It gives you the greatest possible flexibility for editing and arranging, and it is all nondestructive and “undoable.” Additionally, with nonlinear editing in Pro Tools, you will never introduce any degradation of audio fidelity as you would with tape.

DAE

DAE, the Pro Tools audio engine, is a real-time operating system for digital audio recording, playback, and processing. When you install Pro Tools, DAE is automatically installed on your system.

In the same way that a computer's operating system provides the foundation for programs that run on the computer, DAE provides the foundation for much of the hard disk recording, digital signal processing, and mix automation required by Pro Tools and other products from Avid and its Development Partners.

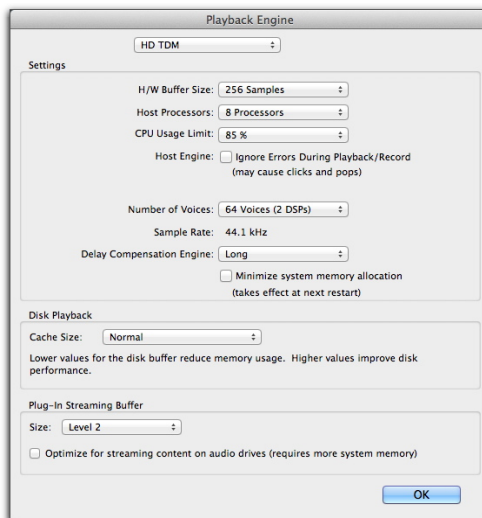
Playback Engine

Pro Tools lets you adjust the performance of your system by changing *system settings* that affect its capacity for processing, playback, and recording. These system settings are available in the Playback Engine (Setup > Playback Engine).

Pro Tools takes advantage of your computer's host processor for certain tasks and optional host-based plug-in processing.

Pro Tools uses host (CPU) processing to provide audio track recording, playback, mixing, and effects processing. Both Pro Tools and Pro Tools HD use host-based processing to run Native AAX (Avid Audio Extension) and RTAS® (Real-Time AudioSuite) plug-ins for effects processing. Performance is determined by your system and its Playback Engine settings.

The Playback Engine lets you set a hardware buffer size and allocate a percentage of CPU resources for these tasks.



Playback Engine for Pro Tools|HD system

On Pro Tools|HD systems, you can select the number of voices and voiceable tracks for your system and its sessions. Voice count choices are based on how much DSP processing you want to allocate for voicing.

The Playback Engine is also where you assign dedicated resources for Automatic Delay Compensation.



For more information, see “Configuring Pro Tools System Settings” on page 64. See also “System Resources” on page 21.

Core Audio

Apple's Core Audio provides audio stream connectivity between software applications and audio hardware on Mac OS X. Pro Tools software can use audio interfaces with supported Core Audio drivers for playback and recording with up to 32 channels of I/O.

ASIO

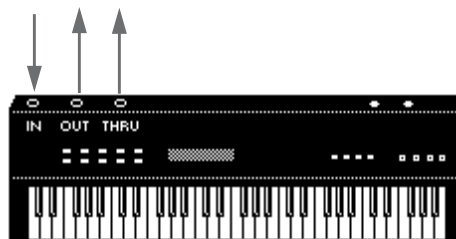
Steinberg's Audio Stream Input/Output (ASIO) provides audio stream connectivity between software applications and audio hardware on Windows. Pro Tools software can use audio interfaces with supported ASIO drivers for playback and recording with up to 32 channels of I/O.

MIDI

MIDI (Musical Instrument Digital Interface) is a communication protocol for musical instruments. This industry standard enables connections between a variety of devices from different manufacturers. Examples of MIDI-compatible equipment include synthesizers, sound modules, drum machines, MIDI patch bays, effects processors, MIDI interfaces, MIDI control surfaces, and MIDI sequencers.

MIDI devices are equipped with 5-pin DIN connectors, labeled as either IN, OUT, or THRU. The MIDI OUT port transmits messages. The MIDI IN port receives messages. The MIDI THRU outputs whatever is received from the IN port. MIDI devices are connected with MIDI cables that are available at most music stores.

USB and FireWire-compatible MIDI devices send and receive MIDI messages to and from the computer over USB or FireWire.



MIDI signal flow

⚠ *Not all devices will have all three MIDI ports (IN, OUT, and THRU).*

The MIDI protocol provides 16 channels of MIDI per port. A single MIDI cable can transmit a separate set of messages for each of the 16 channels. These 16 channels can correspond to separate MIDI devices or to multiple channels within a single device (if the device is *multitimbral*). Each channel can control a different instrument sound. For example, bass on channel 1, piano on channel 2, and drums on channel 10. Similar to a multitrack tape recorder, a MIDI sequencer can record complex arrangements—even using only a single multitimbral keyboard.

MIDI Terms

The following are some basic MIDI terms:

MIDI Instrument A hardware MIDI device or software instrument (such as an instrument plug-in).

MIDI Interface Hardware that lets computers connect to and communicate with external MIDI devices.

MIDI Device Any physical MIDI keyboard, sound module, effects device, or other equipment that can send or receive MIDI information.

MIDI Controller Any MIDI device that transmits MIDI performance data. These include MIDI keyboards, MIDI guitar controllers, MIDI wind controllers, and others. Controllers transmit MIDI from their MIDI OUT ports.

MIDI Control Surface Any device (such as Command8), which uses a MIDI connection to send control messages to a software program, but is not generally used to record MIDI information.

Multitimbral The ability of one MIDI device to play several different instrument sounds (such as piano, bass, and drums) simultaneously on separate MIDI channels. This makes it possible for a single multitimbral MIDI instrument to play back entire arrangements.

MIDI Port A physical MIDI port on a MIDI interface or a virtual MIDI port created in software. There are separate ports for MIDI In and Out. Physical MIDI ports connect to external MIDI devices using MIDI cables. Virtual MIDI ports connect software plug-ins and applications (see also “Virtual MIDI Nodes”).

MIDI Channel Up to 16 channels of MIDI performance data can be transmitted on a single MIDI cable. The channel number separates the different messages so your sound sources can receive the correct messages.

Program Change Event A MIDI command that tells a sound source which of its sounds (or sound patches) to use. The MIDI protocol lets you choose from a range of 128 patches.

Bank Select Message Many devices have more than 128 patches, which are arranged in banks. The Bank Select Message is a MIDI command that specifies the bank of patches from which to choose.

Local Control A controller setting found on most MIDI keyboards that lets them play their own sound source. Disabling “local control” ensures that a device’s internal sound source is only played by external MIDI messages (such as those sent from Pro Tools when MIDI in Pro Tools is routed to the MIDI keyboard). When using Pro Tools, “local control” should usually be disabled (for example, when using MIDI Thru). When “local control” is off, your keyboard still transmits data to its MIDI OUT port.

Continuous Controller Events MIDI instructions that allow real-time changes to notes that are currently sounding. These include pitch bend, modulation, volume, pan, and many others.

System Exclusive Data MIDI data commonly used for sending and retrieving patch parameter information for storage purposes.

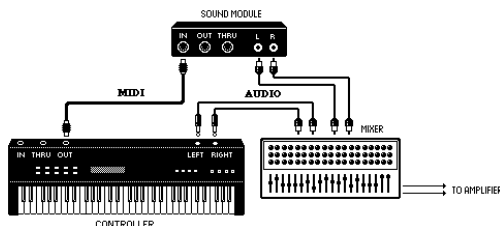
Virtual MIDI Nodes When using MIDI with instrument plug-ins in Pro Tools, virtual MIDI nodes are created. These nodes act like MIDI ports and provide software MIDI connections between Pro Tools and other MIDI software, such as instrument plug-ins. For example, when you insert ProPellerhead’s Reason as a ReWire client on a track, the various MIDI inputs to Reason become available to Pro Tools MIDI and Instrument track MIDI outputs.

Common Misconceptions About MIDI

MIDI is not audio, and by itself makes no sound. MIDI is control information only. It is like the piano roll for a player piano; it provides control information for what note to play when, for how long, at what volume, and with what sound (instrument). For example, when you strike a key on a MIDI keyboard, it sends a message to a MIDI instrument to play that particular note at that particular velocity using the selected sound (instrument). This could be its internal tone generator (like a

synthesizer or sampler), another external MIDI instrument, or an instrument plug-in within Pro Tools. In order to play and hear a MIDI recording, you must have a MIDI instrument. Audio from an external MIDI instrument can be sent to an external mixer or monitored through your Pro Tools audio interface (using either an Instrument track or Auxiliary track).

If you are using an external MIDI instrument, it must be connected to MIDI ports that are recognized by your computer. These ports can be on a Pro Tools interface that has MIDI ports (such as an Mbox Pro) or some other MIDI interface.



Signal paths for external MIDI instruments

Just as each Pro Tools system has unique hardware features, each MIDI device has its own features (and limitations) as to the number of voices and instruments it can play at one time. See the device's documentation for information on its capabilities.

MIDI in Pro Tools

Pro Tools provides powerful MIDI sequencing capabilities. You can record, enter, edit, and play back MIDI data on Pro Tools Instrument and MIDI tracks. These actions can be done in the Edit window, the MIDI Editor window, the Score Editor window, and the MIDI Event List.

MIDI data in Pro Tools can be anything from MIDI note data (note number, on/off, velocity) to System Exclusive (Sysex) messages. MIDI data can be recorded or played back from both external MIDI devices with a MIDI interface and other MIDI software (such as instrument plug-ins and ReWire client applications).

Synchronization

When you are working with multiple time-based systems, such as Pro Tools and an external deck, you want the systems to be synchronized. Synchronization is where one system outputs clock source (such as timecode or MIDI Beat Clock) and another device synchronizes to or follows that clock source so that they work together. Pro Tools can be synchronized to other devices (or other devices can be synchronized to Pro Tools) using SMPTE/EBU timecode or MIDI Timecode.



For more information on different SMPTE/EBU formats, and other concepts related to timecode, see the Pro Tools Sync & Surround Concepts Guide.

Surround Sound

Surround sound simply means having one or more speakers with discrete audio signals (channels) placed behind the listener in addition to the typical stereo pair.

There are multiple types of surround formats in use (from three-channel LCR to 7.1, which has eight channels).

The most common surround format is 5.1, which refers to having 5 speakers and a sub-woofer (the “.1”). 5.1 is used in movie theaters and home entertainment systems. Additionally, most DVDs are mixed to 5.1. The standard speaker placement for 5.1 for surround monitoring is stereo left and right speakers, and an additional center speaker in front, two more stereo left and right speakers in the rear, and the sub-woofer on the side.

Pro Tools HD and Pro Tools with Complete Production Toolkit support mixing in surround formats. In Pro Tools, each surround format is considered to be a *greater-than-stereo* multichannel format.



For information on fundamental surround concepts, see the Pro Tools Sync & Surround Concepts Guide.

Pro Tools Sessions

When you start a project in Pro Tools, you create a *session*. It can be helpful to understand the basic elements of a session.

Session File

A *session file* is the document that Pro Tools creates when you choose File > New Session and configure a new session. Pro Tools can open only one session file at a time. The session file is named with a .ptx (Pro Tools file) extension. Session files contain maps of all elements associated with a project, including audio files, MIDI data, and all your edit and mix information. It is important to realize that a Pro Tools session file does not contain any media files (audio or video). Instead, it references audio, video, MIDI, and other files. You can make changes to a session and save those changes in a new session file. This lets you create multiple versions of a session or back up your editing and mixing work.



Session file icon

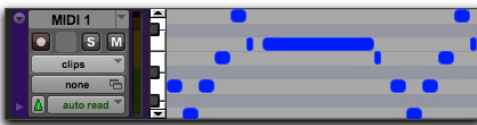
Tracks

Pro Tools tracks are where audio, MIDI, video, and automation data are recorded and edited. Pro Tools tracks also provide audio channels for routing internal busses, and physical inputs and outputs for audio and MIDI.

Pro Tools provides multiple types of tracks: audio, Auxiliary Input, Master Fader, VCA Master, MIDI, Instrument, video, and click.



Audio track in the Edit window (stereo track shown)



MIDI track in the Edit window



Video track in Frames view

Audio, MIDI, Instrument, and video track data can be edited into clips or repeated in different locations to create loops, re-arrange sections or entire songs, or to assemble tracks using material from multiple takes.

Auxiliary Input tracks can route internal audio busses or physical inputs to internal busses or physical outputs. Auxiliary Inputs are typically used for audio effects busses, audio throughput (monitoring), and submixing.

Master Fader tracks provide controls for physical audio output channels, including the volume level of your mix, panning, and plug-in inserts.

VCA Master tracks (Pro Tools HD and Pro Tools with Complete Production Toolkit only) provide control of tracks in a Mix Group that has been assigned to the VCA Master.

Video tracks support QuickTime movies (all Pro Tools systems) and VC-1 video files (Windows 7 only). Additionally, Pro Tools supports Avid video when using a supported Avid video peripheral. An individual video track can play back only one type of video at a time.

Audio, Auxiliary Input, Master Fader, and Instrument tracks can be mono, stereo, or multichannel (Pro Tools HD and Pro Tools with Complete Production Toolkit only). When creating a new track, select from the list of channel formats supported by your system.

Pro Tools also lets you create a Click track so you can record while listening to a click. Click tracks can use the TL Metro plug-in (included with Pro Tools) or a MIDI instrument.

Voices


In Pro Tools, voices are unique, discrete audio streams that can be routed to and from Pro Tools audio tracks, and physical audio outputs and inputs on your Pro Tools audio interfaces. The audio paths to and from Pro Tools software routed to Pro Tools hardware use voices. If you exceed the number of available voices in your system, you have effectively exceeded the available number of audio paths.

Typically, each audio channel for each track in your Pro Tools session uses a single voice. So, for a mono audio track, a single voice is used; for a stereo audio track, two voices are used. When using Punch Recording, two voices are needed for every single audio channel (one for playback and one for recording on punch in and out). In some situations, with Avid HDX and Pro Tools|HD systems, more than one voice may be necessary for a single channel (such as when using host processing on a DSP or TDM bus).

Voices can be allocated *dynamically* (with all Pro Tools systems, any available voices are automatically assigned as they are needed) or *explicitly* (with Pro Tools|HD systems only, you can explicitly assign audio channels to specific available voices to ensure that audio on those channels is always voiced).

On Avid HDX and Pro Tools|HD systems, the number of available voices is dependent on the amount of dedicated DSP processing in your system (see “Playback, Recording, and Voice Limits with Pro Tools HD” on page 49).

On all other Pro Tools systems, the full number of available voices for your system may be limited by the host processing power of your computer (see “Pro Tools Capabilities with Different Hardware Configurations” on page 44).

 For more information about voicing in Pro Tools, see “Track Priority and Voice Assignment” on page 244.

Media Files

Pro Tools sessions create, import, export, and reference media files. Media files are audio, MIDI, and video files. Audio and video media files are stored separately from the Pro Tools session file. MIDI data is stored in the session file.

Audio Files

When you record audio into a Pro Tools session, audio files are created.



Audio file icon

Audio files for each session are stored in a folder named “Audio Files.” Audio files are listed in the Pro Tools Clip List and can appear in an audio track. A section of an audio file can be defined as a clip. See “Clip” on page 17.

MIDI Files

When you record or enter MIDI into a Pro Tools session, all MIDI data is stored in the Pro Tools session file. You can import and export MIDI files to and from Pro Tools sessions, but MIDI recorded or otherwise created in a Pro Tools session does not automatically create new MIDI files.



MIDI file icon

Video Files

When you record or import video into a Pro Tools session, all video data is stored as the corresponding video file type (such as QuickTime). Video files can be created in (or copied to) the Video Files folder in the session folder. However, in most cases, Pro Tools references video files that have been captured by another application, such as Avid Media Composer®.

Clip

A *clip* is a segment of audio, MIDI, or video data. A clip could be a drum loop, a guitar riff, a verse of a song, a recording take, a sound effect, some dialog, or an entire sound file. Clips are especially useful for arranging audio and MIDI. A clip can also have associated automation data. In Pro Tools, clips are created from audio files or MIDI data, and can be arranged in audio and MIDI track playlists. Clips can also be grouped (a “clip of clips”) and looped (repeated).



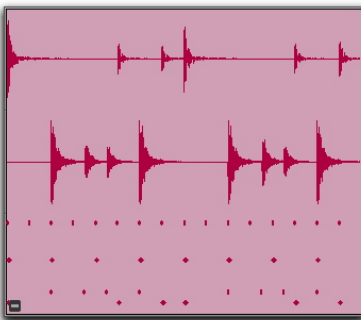
Audio clip



MIDI clip



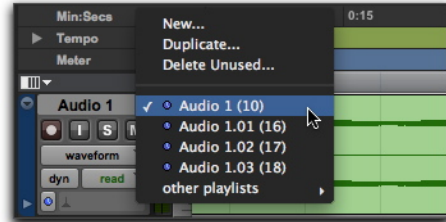
Video clip (Frames view)



Clip group (Mixed audio and MIDI multitrack clip group)

Playlist

A *playlist* is a sequence of clips arranged on an audio, MIDI, or video track. Tracks have *edit playlists* and *automation playlists*.



Playlist selector pop-up menu

On audio tracks, an edit playlist tells the hard disk which audio clips to play in what order. For example, you can have separate audio clips for a song introduction, the first verse, the first chorus, and so on. You can also use the same audio clip to access the same piece of audio multiple times at different locations and not use additional disk space. Different versions of the same original audio can be used in different places and have different effects applied. On MIDI and Instrument tracks, edit playlists can store multiple MIDI sequences (or performances) on a track.

A playlist can be made up of a single clip or many separate clips. It can be made up of similar elements (such as clips from several different takes of a solo), or dissimilar elements (such as several sound effects).

You can create any number of alternate edit playlists for a track. This lets you assemble different versions of performances or edits on a single track and choose between them from the Playlists menu on the track.

Each audio, Auxiliary Input, Instrument, Master Fader, and VCA track also has a single set of automation playlists. Automation playlists can include volume, pan, mute, and each automation-enabled control for the insert and send assignments on that track.

MIDI controller data on Instrument and MIDI tracks is always included as part of the track playlist.


Channel

The term *channel* is used to describe several related components of a Pro Tools system.

The first example of channel refers to a physical input or output of your Pro Tools system. For example, HD I/O provides up to 16 channels of audio input and output to an Avid HDX, Pro Tools|HD, or HD Native system, while the Mbox Pro audio interface provides up to eight inputs and eight outputs.

The second use of the term *channel* refers to a channel strip in the Pro Tools Mix window. Each track in a Pro Tools session has a corresponding *channel strip* in the Mix window.

Audio and MIDI channel strips have similar controls, but those controls have slightly different effects. For example, audio, Auxiliary Input, and Instrument track channel strip faders control the output gain to the mix bus for that channel, while MIDI channel strip faders send MIDI volume data (MIDI controller 7) to the selected MIDI instrument.

 The term “MIDI channel” also describes a separate aspect of MIDI operation. See “MIDI” on page 11.



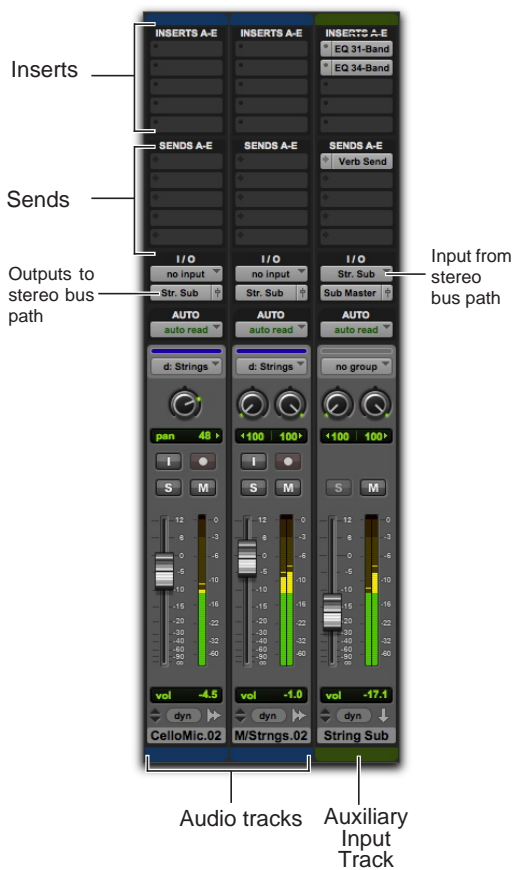
Channel strip in the Mix window (audio track)

Signal Routing

Pro Tools provides software-based mixing and signal routing controls for audio and MIDI. These controls are located in the Mix window. Some of these controls can also be accessed from the Edit window.

A common audio signal routing task is to submix multiple tracks to a single channel strip (such as an Auxiliary Input) for shared processing and level control.

The following example shows two audio tracks submixed to a stereo Auxiliary Input.



Submixing to an Auxiliary Input

Signal Routing Options

Signal routing options include the following:

Track Input and Output (I/O) Controls The most basic type of signal routing is track input and output. A track needs to have an assigned input path to record audio, and an assigned mapped output path in order to be audible through a hardware output. Signals can also be routed to or from other tracks in Pro Tools (or hardware inputs and outputs) using internal busses.

Auxiliary Input and Master Fader Tracks Auxiliary Inputs can be used as returns, submixers, and bus masters. Master Fader tracks are used as bus and output master level controls. Both Auxiliary Input and Master Fader tracks can have plug-in and hardware inserts.

MIDI Tracks MIDI tracks are generally used for routing MIDI from internal or external sources to external MIDI devices. MIDI data can also be routed to plug-ins on Auxiliary Inputs or Instrument tracks.

Instrument Tracks Instrument tracks are the primary way to route MIDI to an instrument plug-in and then route the plug-in's sound to outputs, sends and busses, or other inserts. Instrument tracks can also be used to send MIDI to and monitor audio from external MIDI devices.

Sends Sends route audio from tracks to hardware outputs, or to internal busses that are in turn routed to other tracks within Pro Tools. MIDI, Master Fader, and VCA Master tracks do not have sends.

Plug-In and Hardware Inserts Plug-in processing occurs completely within the Pro Tools system. Hardware inserts use audio interface inputs and outputs for traditional insert routing to and from external effects and other devices. MIDI and VCA Master tracks do not have inserts.

Instrument Plug-Ins Instrument plug-ins are different from processing plug-ins in that they generate audio rather than process the audio signal from a track's audio input or from hard disk. Instrument plug-ins are typically played by MIDI.

Paths Paths are any routing option in Pro Tools, including internal or external inputs, outputs, busses, and inserts. Pro Tools lets you name these paths, and these path names appear in the Audio Input and Output Path selectors and other menus. For more information, see Chapter 7, "I/O Setup."

Mixing Formats Sessions can include combinations of mono, stereo, and greater-than-stereo multichannel format tracks, busses, inputs, outputs, and inserts. Greater-than-stereo multichannel formats are supported with Pro Tools HD and Pro Tools with the Complete Production Toolkit option only.

Grouping and VCA Tracks Tracks can be grouped together for mixing so that their relative mix settings are maintained when changing a mix setting for any track in the group. For example, changing the volume of one track affects the volume of all the other tracks in the group. VCA Master tracks (Pro Tools HD and Pro Tools with Complete Production Toolkit only) control the relative mix settings for all tracks within the selected group.

Tick-Based and Sample-Based Time

Pro Tools lets you set any track timebase to either sample-based or tick-based. You can also set the Timeline to be viewed as tick-based or sample-based.

Audio in Pro Tools is sample-based by default. This means that if an audio clip is located at a particular sample location, it will not move from that location if the tempo changes in the session—though its Bar|Beat location *will* change.

MIDI data in Pro Tools is tick-based by default. This means that if a MIDI clip is located at a particular Bar|Beat location, it will not move from that Bar|Beat location if the tempo changes in the session—though its sample location *will* change.

You can select whether a track is sample-based or tick-based when it is created, or change timebases later.

Sample-Based Audio and MIDI

With a sample-based audio track, all clips in the track have an absolute location on the Timeline. Clips stay fixed to the sample time, regardless of where tempo or meter changes occur in a session.

If you make a MIDI track sample-based, all MIDI events in the track have an absolute location on the Timeline. MIDI events stay fixed to sample time, regardless of any tempo or meter changes in a session.

Tick-Based Audio and MIDI

Tick-based audio is fixed to a Bars|Beat location, and moves relative to the sample Timeline when tempo and meter changes occur. However, MIDI events and tick-based audio respond differently to tempo changes with respect to duration. MIDI note events change length when tempo or meter is adjusted, while audio clips do not (unless Elastic Audio is enabled). When Elastic Audio is *not* enabled on an audio track, meter and tempo changes affect only the start point (or sync point) for each audio clip in a tick-based track. If Elastic Audio is enabled on an audio track, tempo changes apply Elastic Audio processing, which changes the duration of the audio clip.

Elastic Audio

Elastic Audio provides real-time and non-real-time (rendered) Time Compression and Expansion (TCE) of audio. Tick-based Elastic Audio tracks actually change the location of samples according to changes in tempo. The audio stretches or compresses to match changes in tempo. Elastic Audio also provides high-quality non-real-time clip-based pitch shifting.

Pro Tools Elastic Audio uses exceptionally high-quality transient detection algorithms, beat and tempo analysis, and real-time or rendered TCE processing algorithms. Elastic Audio lets you quickly and easily tempo conform and beat match audio to the session's Tempo ruler. It also provides an unprecedented degree of control over transient detection and TCE processing on an event-by-event basis.

With Elastic Audio, Pro Tools analyzes entire audio files for transient “events.” For example, an event can be a drum hit, a sung note, or chord played by a guitar. These detected events can then serve as control points for “warping” the audio. Pro Tools can warp (TCE) audio events automatically, such as when automatically conforming audio to the session tempo or quantizing audio events, or you can warp audio manually using the standard editing tools with the audio track set to Warp view.

Elastic Audio is useful in several common workflows: working with loops, correcting performances, remixing, beat and pitch matching, and sound design and special effects.

System Resources

Track count, plug-in processing, signal path and routing options, and voice availability are ultimately limited by the combined resources available from the host computer and from your Pro Tools hardware.

Pro Tools provides several ways to manage and conserve resources to maximize the performance of your system. As you begin working with Pro Tools sessions and tracks, you can take advantage of the following features to extend the effectiveness of your available DSP and other resources:

- ◆ Pro Tools lets you adjust the performance of your system by changing system settings that affect its capacity for processing, playback, and recording. See “Configuring Pro Tools System Settings” on page 64.
- ◆ In order to free up needed DSP resources, Pro Tools allows for certain items (such as tracks and inserts) to be manually made inactive. Inactive elements are viewable, editable, and retained

within the session. See “Active and Inactive Items” on page 22.


◆ All Pro Tools systems provide flexible voice options for audio tracks, to help maximize use of available voices in your system. For more information on voice management and options, see “Voice Borrowing” on page 248.


Active and Inactive Items

Pro Tools lets you make certain items (such as tracks and inserts) *inactive*, in order to free up DSP resources and mixer connections.

Items in Pro Tools that can be made inactive include the following:

- Audio, Auxiliary Input, Master Fader, VCA Master, and Instrument tracks
- Track Inputs and Outputs
- Sends
- Side-chain inputs
- Plug-Ins
- Hardware inserts
- Paths (session-wide)

 *MIDI tracks cannot be made inactive.*

 *Side-chain inputs support direct active and inactive switching, but do not follow switching all or all selected side-chain inputs.*

In addition to manually setting Active and Inactive modes, Pro Tools automatically makes items inactive if there are insufficient or unavailable resources.

When *active*, items are fully engaged and operational.

When *inactive*, items are silent and off, although most associated controls can still be adjusted. Different inactive items affect available system resources in specific ways, as follows:

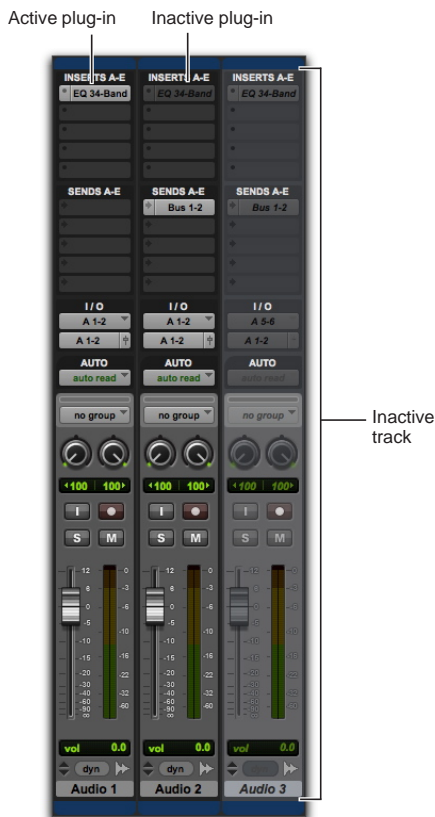
Plug-Ins When a plug-in is inactive on a track, its DSP is made available for other plug-ins and processing. Plug-In assignments can be made inactive manually or automatically (see “Automatic and Manual Inactive Mode” on page 23).

Paths and Path Assignments When a path or path assignment is inactive, its mixer resources are made available for other signal routing purposes in the session. Paths and assignments can be made inactive manually or automatically (see “Automatic and Manual Inactive Mode” on page 23).

Tracks When a track is made inactive, its voices become available for another track. Inactive mono tracks free up one voice; inactive stereo and multi-channel tracks free up one voice per channel. Additionally, when an audio, Auxiliary Input, Instrument, or Master Fader track is made inactive, its plug-ins, inserts, sends, and I/O assignments become inactive, and the associated DSP used is freed up for use elsewhere in the session.

Display of Inactive Items

When items are inactive, their names appear in italics, and their background becomes dark gray. When a track is inactive, the entire channel strip is grayed out.



Active and inactive plug-ins, sends, and tracks

Automatic and Manual Inactive Mode

Active and Inactive modes are powerful options for session transfer and system resource management. Pro Tools provides automatic and manual Inactive mode switching. You can manually make items inactive (or active) to selectively manage system resources while editing and mixing.

Automatically Inactive Items

When opening a session, it is possible that not all signal paths, plug-ins, or audio interfaces used in the session will be available as defined on the current system. When opening a session, sufficient voices may also be unavailable if the session was created on a different Pro Tools system type (for example, opening a session created on a Pro Tools|HD system on a Pro Tools system with an Mbox Pro audio interface).

Whenever this occurs, the session will open as it was last saved. All items that are unavailable, or cannot be loaded due to insufficient resources, are made inactive.

Manual Inactive Switching

You can manually apply Active or Inactive modes to manage system resources. By making an item inactive, its associated resources are made available elsewhere in the session.

DigiBase

DigiBase is a database management tool for Pro Tools. DigiBase expands upon basic Pro Tools search and import capabilities by providing powerful tools to manage your data both inside and outside of your sessions, on any hard drive connected to the system.

A *database* is a way of organizing data such that it can easily be searched, sorted, managed, and utilized. Your checkbook is an example of a database file. For every check you write, you enter a new record. That record contains information about the check, such as when you wrote it, to whom you wrote it, and for what amount. This information is written in specific columns, or fields. Everything you need to know (the check's *metadata*) is there, even though the check itself is not.

DigiBase browsers let you search, sort, and manage these databases by volume or catalog. You can use DigiBase browsers not only to organize your Pro Tools sessions and media files (audio, MIDI, and video), but also to audition and import by drag and drop.



For more information about DigiBase, see Chapter 16, "DigiBase."

AAF, MXF, and OMF

Pro Tools lets you exchange audio, video, and sequences with other AAF-, MXF-, and OMF-compatible applications (such as Avid editors).

Media Data (Media Files)

Media data represents raw audio or video material and is stored in individual media files. Every time you record a piece of video or audio material into an application, you are creating a media file. Audio media files hold *samples* (such as 44,100 or 48,000 samples per second of recording) while video media files use *frames* (24, 25, or 30 frames per second of recording).

The size of each media file depends on how much audio or video material it contains. For example, a file containing ten minutes of high resolution video might be approximately 2.16 GB in size, whereas a ten-minute audio recording at the might result in a 100 MB file. Media files tend to be large, since high quality audio and video signals are data intensive. Video data generally requires considerably more storage than audio data.

Metadata

Metadata is used to describe the following:

- Information embedded in a media file. This may include scene, take, sample rate, bit depth, external clip names, the name of the videotape from which the media file was captured, and even timecode values.
- Information embedded in Pro Tools sessions or other *sequences*, including what files are used, where they appear in a timeline, and automation.
- For AAF or OMF sequences, metadata also includes information embedded in unrendered AudioSuite™ effects (such as real-time EQ) on Avid workstations. Pro Tools skips unrendered effects on import. Rendered effects are media files that can be imported into Pro Tools.
- For AAF or OMF sequences, information about automation (clip-based gain or keyframe gain).

AAF, OMF, and MXF Basics

AAF and OMF files are mechanisms for storing and retrieving media files and metadata so that projects can be freely exchanged between different applications and platforms. MXF is a media file format that can be used with AAF (but not OMF) files.

Media data and metadata enable an application that receives AAF and OMF sequence files (such as Pro Tools) to automatically and quickly reassemble the composition. A simple metaphor for this approach is that media data files are the pieces of a puzzle and metadata is the set of instructions for assembling the puzzle.

In the simplest case, only an AAF or OMF sequence is exchanged. If this sequence points to existing media files, the size of the sequence file is relatively small and the export/import process is relatively fast.

AAF and OMF sequences can also have media data embedded in them. This creates a single, larger file that is slower to export and import, but which may be easier to manage than thousands of files stored on different volumes.

AAF

AAF is a sequence file format. AAF sequences are the best way to exchange projects and maintain valuable metadata. An AAF sequence can refer to OMF or MXF media files, or have OMF and MXF media files embedded within them. There is no such thing as an AAF audio or video media file.

Pro Tools will import, play back, and export an AAF sequence that either links to media files or has audio embedded within it.

When you import an AAF sequence with embedded audio into Pro Tools, the audio will be extracted into mono tracks using the current session's audio file format.

MXF

MXF is a media file format. There are MXF video files and MXF audio files, but there are no MXF sequences. An AAF sequence may refer to or include MXF media files, but OMF sequences cannot refer to or include MXF files.



MXF file icon

Pro Tools can import and play back MXF audio and video files created in Media Composer or other Avid applications.

💡 *Video files digitized in Pro Tools are technically in the MXF format, but are intended only for use in Pro Tools and are not tested for compatibility with other applications.*

OMF

OMF is both a media file and sequence format. OMF media files can be audio or video, and Pro Tools can import and play back OMF audio and video. Pro Tools can also export OMF audio, but not OMF video.

Pro Tools can import and play back OMF audio and video files created in Media Composer or other applications.

An OMF sequence cannot reference or have MXF media embedded within it.

Pro Tools can import an OMF sequence with embedded audio, but not embedded video.

Pro Tools and Avid Terminology

Pro Tools and Avid use different terms to describe the same items. For example, a Pro Tools *session* is equivalent to an Avid *sequence*. The following table lists common Pro Tools elements and their Avid equivalents.

Pro Tools	Avid (AAF or OMF)
session	sequence
whole file clip	master clip
clip	subclip
plug-ins	real-time audio effects
volume automation gain	Avid keyframe volume

⚠ *Whole audio files in the Clip List normally appear in bold type. However, master clip audio files imported from AAF or OMF into Pro Tools will not appear in bold type (indicating clips) in the Pro Tools Clip List even though they are audio files.*

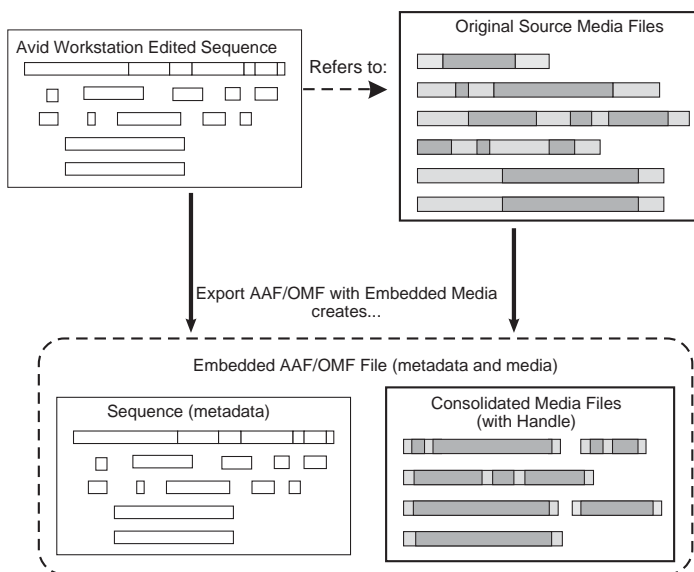
Embedded Media and Linked Media

There are two types of AAF and OMF files: ones with embedded media, and ones with linked media.

Embedded Media

Exporting to AAF or OMF with embedded media results in one large AAF or OMF file containing both the metadata and all associated media files.

- A** *When working with OMF embedded media or creating AAF embedded audio, Pro Tools limits file size to 2 GB. However, you may be able to use Pro Tools to open an AAF embedded audio file larger than 2 GB if it was exported from another source.*



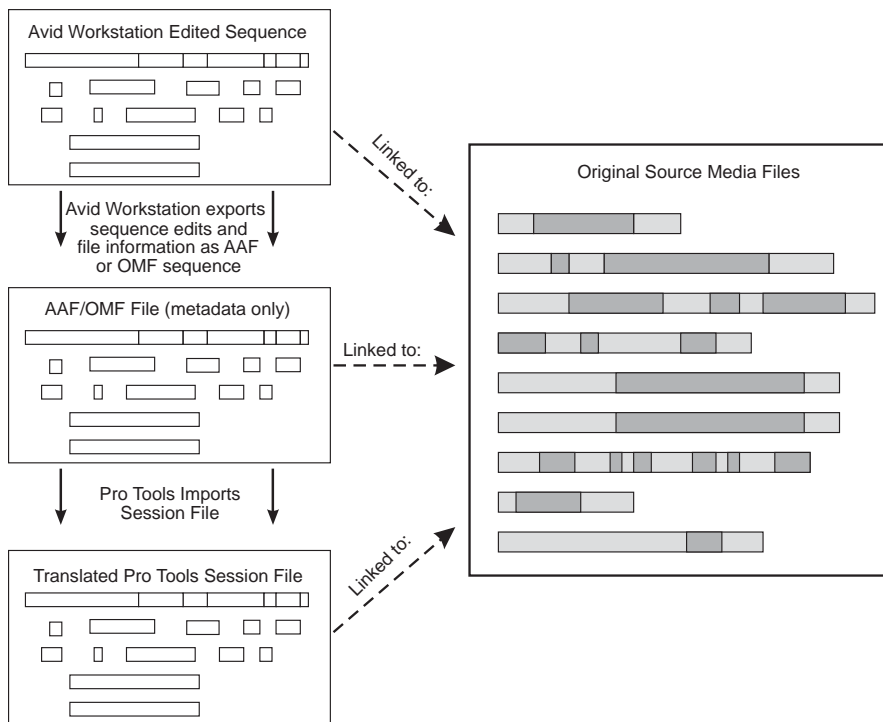
AAF/OMF Interchange Workflow with Embedded Media

Linked Media

Exporting AAF or OMF with linked media results in a single metadata file (.AAF or .OMF) and all associated media stored as separate files.

The main benefit to this approach is that fewer copies of media files may need to be made, so the export and import process can be much faster. Using this approach, it is less likely that you will encounter any file size limitations since the data is broken up into many smaller files.

The main disadvantage to this approach is that there are potentially many files (for example, one AAF or OMF file and hundreds of media files) that must be transported between systems.



AAF and OMF Interchange Workflow with Linked Media

Chapter 3: Keyboard and Mouse Shortcuts

For increased operational speed and ease of use, there are many Pro Tools® keyboard and Right-click shortcuts.

A full list of Pro Tools shortcuts is available in on-line Help and in a PDF guide.

To access the full list of Pro Tools shortcuts in online Help:

- 1 Choose Help > Pro Tools Help.
- 2 Click Pro Tools Shortcuts on the Contents page (in the left pane of Help).

To access the full list of Pro Tools shortcuts in the Pro Tools Shortcuts Guide:

- Choose Help > Shortcuts.

Mouse Shortcuts

Right-Click Shortcuts

Pro Tools provides Right-Click shortcuts for choosing various Pro Tools commands and menus with any Right-Click capable mouse.


 *For a complete list of Right-Click shortcuts, see the Shortcuts Guide.*

Scroll-wheel Functions

Pro Tools lets you increment or decrement values in numerical fields by selecting the value and moving the mouse scroll wheel up or down.

Global Key Commands

Some keyboard shortcuts apply to many functions in Pro Tools.

 *For a complete list of keyboard shortcuts, see the Shortcuts Guide.*

Track Functions

Pro Tools provides keyboard shortcuts for the following track functions:

- Changing Automation mode
- Enabling playlists
- Adding plug-ins
- Record enabling, soloing, and muting tracks
- Record safing and solo safing tracks
- Assigning inputs, outputs, and sends
- Toggling volume/peak/delay display
- Clearing meters
- Changing track heights

Command	Windows	Mac
Apply action to all channel strips/tracks	Alt+ action	Option+ action
Apply action to selected channel strips/tracks	Alt+ Shift+ action	Option+ Shift+ action

List and Parameter Selection

Pro Tools provides keyboard shortcuts for the following items:

- Selection of tracks in Track List
- Enabling of groups in Group List
- Automation Enable window parameters
- Setting Memory Location parameters

Command	Windows	Mac
Toggle item and set all others to same new state	Alt-click item	Option-click item
Toggle item and set all others to opposite state	Control-click item	Command-click item

Controls and Editing Tools

Pro Tools provides keyboard shortcuts for moving plug-in controls, faders and sliders, the Scrubber, and automation data.

Command	Windows	Mac
Fine adjustment of sliders, knobs, and breakpoints	Hold Control while clicking the item	Hold Command while clicking the item

Keyboard Focus

The Keyboard Focus in Pro Tools determines how the alpha keys function. Depending on which Keyboard Focus is enabled, you can use the keys on your computer (alpha) keyboard to select clips in the Clip List, enable or disable groups, or perform an edit or play command.

You can only enable one of the three Keyboard Focus modes at a time. Enabling a Keyboard Focus will disable the one previously enabled.

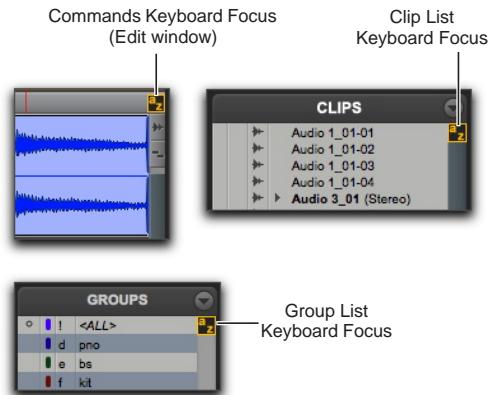
There are three types of Keyboard Focus:

Commands Keyboard Focus When selected in the Tracks pane in the Edit window or in the Notes pane of any MIDI Editor window, this provides a wide range of single key shortcuts from the computer keyboard for editing and playing. The front-most Edit or MIDI Editor window always receives Commands Keyboard Focus when it is enabled.

With Commands Keyboard Focus disabled, you can still access any of its key shortcuts by pressing the Start key (Windows) or Control (Mac) along with the key. See the *Shortcuts Guide* for a complete list of Commands Keyboard Focus shortcuts.

Clip List Keyboard Focus When selected, audio clips, MIDI clips, and clip groups can be located and selected in the Clip List by typing the first few letters of the clip's name.


Group List Keyboard Focus When selected, Mix and Edit Groups can be enabled or disabled by typing the Group ID letter (in either the Mix or Edit window).



Keyboard Focus buttons

To set the Keyboard Focus, do one of the following:

- Click the a–z button for the focus you want to enable.
- While pressing Command+Option (Mac) or Control+Alt (Windows), press one of the following keys: 1 (Commands), 2 (Clip List), or 3 (Group List).

 *Although multiple plug-in windows can have a keyboard focus enabled, only the front-most window receives any keyboard input.*

Toolbar Focus

In the Edit window, the MIDI Editor pane can be displayed in addition to the Tracks pane (View > Other Displays > MIDI Editor). When the MIDI Editor pane is displayed, there are two separate Toolbars and Timelines in the Edit window: one for the Tracks pane and one for the MIDI Editor pane. Only one Toolbar and Timeline can be focused for Menu and Toolbar commands (including the corresponding keyboard shortcuts) at a time. The focused Toolbar displays a yellow outline.

If Keyboard Focus for the Edit window is enabled, it follows the selected Toolbar focus.

To enable Toolbar focus for the Tracks pane, do one of the following:

- Click the Toolbar at the top of the Edit window.
- Press Command+Option+4 (Mac) or Control+Alt+4 (Windows).

To enable Toolbar focus for the MIDI Editor pane, do one of the following:

- Click the Toolbar right above the MIDI Editor pane.
- Press Command+Option+5 (Mac) or Control+Alt+5 (Windows).

Numeric Keypad Modes

The Operation preference for Numeric Keypad mode determines how the numeric keypad functions for Transport.

There are two Shuttle Lock modes (Classic and Transport), and one Shuttle mode.

No matter which Numeric Keypad mode is selected, you can always use the numeric keypad to select and enter values in the Event Edit Area, Edit Selection indicators, Main and Sub Counters, and Transport fields.

To set the Numeric Keypad Mode:

- 1 Choose Setup > Preferences and click the Operation tab.
- 2 In the Transport section, select a Numeric Keypad mode (Classic, Transport, or Shuttle).
- 3 Click OK.


Shuttle Lock Modes

There are two Shuttle Lock modes (Classic and Transport). Both modes let you use the numeric keypad to shuttle forward or backwards at specific speeds.

- 5 is normal speed.
- 6–9 provide increasingly greater fast-forward speeds.
- 1–4 provide progressively greater rewind speeds (4 is the slowest, 1 is the fastest).
- Press 0 to stop Shuttle Lock, then press the number to resume Shuttle Lock speed.
- Press Escape or Spacebar to exit Shuttle Lock mode.

Custom Shuttle Lock Speed (Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

The highest fast-forward Shuttle Lock speed (key 9) can be customized.

 For information, see “Custom Shuttle Lock Speed” on page 561.

Classic Mode

This mode emulates the way Pro Tools worked in versions lower than 5.0. With the Numeric Keypad mode set to Classic, you can:

- Play up to two tracks of audio in Shuttle Lock mode. Press the Control key (Mac) or the Start key (Windows), followed by 1–9 for different play speeds.
- Press Plus or Minus to reverse direction.
- Press 0 to stop Shuttle Lock, then press the number to resume Shuttle Lock speed.
- Press Escape or Spacebar to exit Shuttle Lock mode.
- Recall Memory Locations by typing the Memory Location, followed by a Period (.).

Transport Mode

This mode lets you set a number of record and play functions, and also operate the Transport from the numeric keypad.

Function	Key
Click on/off	7
Countoff on/off	8
MIDI Merge/Replace mode	9
Loop Playback mode on/off	4
Loop Record mode on/off	5
QuickPunch mode on/off	6
Rewind	1
Fast Forward	2
Record enable	3
Play/Stop	0

With the Numeric Keypad mode set to Transport, you can also:

- Play up to two tracks of audio in Shuttle Lock mode. Press the Control key (Mac) or the Start key (Windows), followed by 1–9 for different play speeds.
- Press Plus or Minus to reverse direction.
- Press 0 to stop Shuttle Lock, then press the number to resume Shuttle Lock speed.
- Press Escape or Spacebar to exit Shuttle Lock mode.
- Recall Memory Locations by typing Period (.), the Memory Location number, and Period (.) again.


Shuttle Mode

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

Pro Tools offers another form of shuttling, different from that of the two Shuttle Lock modes. With the Numeric Keypad mode set to Shuttle, playback of the current Edit selection is triggered by pressing and holding the keys on the numeric keypad—playback stops once the keys are released. Various playback speeds are available in both forward and reverse. In this mode, pre- and post-roll are ignored.

Playback Speeds	Key
1x Forward	6
1x Rewind	4
4x Forward	9
4x Rewind	7
1/4x Forward	3
1/4x Rewind	1
1/2x Forward	5+6
1/2x Rewind	5+4
2x Forward	8+9
2x Rewind	8+7
1/16x Forward	2+3
1/16x Rewind	2+1
Loop Selection (1x)	0

With the Numeric Keypad mode set to Shuttle, you can also recall Memory Locations by typing Period (.), the Memory Location number, and Period (.) again.

 *Shuttle Lock modes are not available when the Numeric Keypad mode is set to Shuttle.*

Chapter 4: Using Help

Pro Tools Help provides quick access to workflows and reference information. Built-in search capabilities and an index are included to better support your Help needs.

The Help system is HTML-based and runs on most common web browsers. When running in Pro Tools, it automatically uses the in-application Web browser. You can also run Help from outside Pro Tools, using another browser (such as Safari or Explorer).



The Pro Tools in-application Web browser is not available outside Pro Tools. To use Pro Tools Help while Pro Tools is not running, use the default Web browser for your operating system.

Accessing the Help System

There are several ways to access the Help system.

- Open Help at its Welcome page from the Help menu in Pro Tools
- Open Help at its Welcome page from within a Help browser in Pro Tools
- Open Help at its Welcome page outside of Pro Tools
- Open a different version or language of Pro Tools Help

To open Help within Pro Tools, do one of the following:

- Choose Help > Pro Tools Help.
- From the Pro Tools Online browser window (which can be accessed by choosing any of the Help browser commands in the Help menu), choose Help.

To open Help outside of Pro Tools (or to select a different version or language of Help):

- 1 Open your favorite online browser (such as Safari or Explorer).
- 2 Visit the Pro Tools Help launch page (<http://apps.avid.com/ProToolsHelp/>).
- 3 Follow the on-screen instructions to open a version of Help.

To close the Help system:

- Click the Help viewer's Close button.

Help Display

The Help system includes the following display elements:

Topics Help topics open in the right pane of the Help viewer.

Navigation Tools Contents, Index, and Search tabs open in the left pane of the Help viewer.

Hierarchy Links Use these links to verify the location of the currently displayed topic within its chapter and to jump to relevant higher-level topics, including the Main Topic.

Show in Contents Button Use this button to locate the current topic in the Contents.

Previous Topic and Next Topic Buttons Use these buttons to browse through the topics in the order in which they appear in the Contents.

Print Click this button to print one or more topics.

Using the Contents and Index Tabs

The left pane of the Help browser is the display area for most of the Help system's main navigation tools, including the Contents and Index tabs.

Contents Tab

The Contents tab displays a complete hierarchical list of all topics in the Help system. This lets you quickly see the overall organization of the Help system.

You can expand and collapse the contents to view the logical organization of the Help system, and you can move to any topic by clicking its entry in the Contents.

When you move to a new topic, the contents expands to the level of that topic and highlights the topic. This feature, like the hierarchy links at the top of each topic, lets you see exactly where the current topic is positioned within the logical organization of the Help system.

To display a topic from the contents:

- Click the Contents tab, and then click a topic's entry in the contents.

To expand or close a section in the contents:

- Click the Contents tab, and then click a book icon to the left of a link.

Index Tab

The Index provides an alphabetized list of entries similar to the index of a printed book.

If Java is enabled in your browser, the Index displays as a dynamic index where the listing scrolls as you type a word in the text box. If you do not have Java enabled in your browser, or if your browser does not support Java implementations, a JavaScript version of the index displays, which lets you scroll manually through the entries.

To find topics by using the Index tab:

- 1 Click the Index tab.
- 2 Click the first character of the topic in the Numerics, Letters, Symbols list.

To view the topic associated with an index entry:

- Click the index entry.

Using the Search Tab

The Search tab lets you search the entire text of the Help system for one or more words and then lists the topics that include those words. The list of results is ranked, placing the topics that the Search feature considers most likely to be relevant at the top of the list.

When you search for text, the text string automatically highlights by default. You can turn these highlights off. You can also stop displaying highlights after a search by using the Back and Forward buttons to go to a different topic. When you come back to your searched topic, the highlights no longer display.

For more guidelines on using the Search feature effectively, see “Search Guidelines” on page 38.

To perform a basic search:


- 1 Click the Search tab.
- 2 In the Search pop-up menu (located below the Search text box), click whether you want to search in “All Available Books” or a specific book (such as Pro Tools Shortcuts).
- 3 In the Search text box, type the word or words that you want to find.
- 4 Click Go.

A list of topics and ranking numbers appears.

Additional Search Information

The Search feature provides the best combination of usefulness and speed. To use Search successfully, you should understand the following aspects of the Search feature:

- The Search feature uses a database of valid words. This database includes all words that are significant for identifying topics and excludes all other words. When you type words in the search text box, the system ignores any invalid words that you have typed and searches for valid words.
- The Search feature cannot search for words in a certain order. For example, if you type “TIFF graphics import” as a search entry, Search displays all topics that contains these three words regardless of their location in the topic. The results include topics where the three words appear together as a phrase, and also topics where the three words are scattered throughout the topic.
- The Search feature cannot distinguish between words that are similar but not identical. For example, if you type “capture” as a search entry, Search displays topics that include that word, but it does not find topics that include related words such as “captures” or “capturing.” If a search for a word fails to produce useful results, you might be more successful if you search again using one of the related words.

 *The Help system’s search functionality has a limitation when the Help system is running in the Safari browser. You can perform one search successfully, but subsequent searches do not return results until you clear the Safari cache. You can do this by quitting Safari and relaunching the Help, or by emptying the cache directly (select Safari > Empty Cache, or use the Command+Option+E keyboard shortcut). Other browsers, such as Mozilla Firefox, do not have this limitation.*

Search Guidelines

Use the following rules for formulating search queries:

- Searches are not case-sensitive, so you can type your search in uppercase or lowercase characters.
- You can search for any combination of letters (a-z) and numbers (0-9).
- Punctuation marks (such as the period, colon, semicolon, comma, and hyphen) are ignored during a search, unless they are part of the topic (such as .WAV).
- You can search for a literal phrase by using quotation marks. You cannot search for quotation marks.

Copying from a Help Topic

You can copy information from a Help topic for use in another document (such a text file).

To copy information from a Help topic to another document:

- 1 Open or click the topic to make it active.
- 2 Select the text that you want to copy.
- 3 Choose Edit > Copy.
- 4 Place the mouse pointer in another application, such as a word processing application.
- 5 Choose Edit > Paste to paste the copied text into a document. (You can also paste the text into the Search text box.)

Printing Help Topics

You can print Help topics if you need to refer to them during a complicated procedure or to use for reference later.

See your browser documentation for more information on print options.

To print a Help topic:

- 1 Click the topic pane within the browser window that you want to print.
- 2 Do one of the following:
 - Click the Print button in the Topic pane.
 - Right-click in the Topic pane and select Print.
 - Select File > Print.
- 3 Select the print options.
- 4 Click Print.



Topics that you print from Help have limited page layout and formatting features. If you want to print a higher quality version of Help information, Avid recommends that you print all or part of the PDF version of the appropriate guide. For a list of all Pro Tools guides and how to access them, see “Pro Tools Documentation” on page 3.

Part II: System Configuration

Chapter 5: Pro Tools Systems

There are four types of Pro Tools systems:

Pro Tools

These systems include Pro Tools software with Avid 003™ or Digi 002® family audio interfaces, Eleven® Rack, Mbox® or Mbox 2 family audio interfaces, or M-Audio hardware. These systems also include Pro Tools software using third-party audio interfaces with supported Core Audio (Mac, including the built-in audio on Mac computers) or ASIO (Windows) drivers.

Pro Tools HD with Hardware Acceleration


Hardware accelerated Pro Tools HD systems include Pro Tools HD software with HDX, Pro Tools|HD, or HD Native hardware. Hardware accelerated systems provide expanded I/O capabilities and low latency monitoring. Pro Tools HD software with HDX or Pro Tools|HD hardware also provides dedicated DSP for plug-in processing and for large mixer configurations.

Pro Tools HD or Pro Tools with Complete Production Toolkit

These systems include Pro Tools HD software or Pro Tools software with the Complete Production Toolkit option with any compatible Avid, Core Audio, or ASIO hardware.

Pro Tools Express

These systems include Pro Tools Express software with Mbox family audio interfaces (third generation).

 *For a list of qualified audio interfaces and computers for all Pro Tools systems, visit www.avid.com/compatibility.*

Pro Tools Software

Pro Tools software provides the following capabilities, depending on your hardware configuration:

- Up to 32 channels of I/O depending on your system and audio hardware
- Up to a total of 96 voiced mono or stereo audio tracks (up to 128 voiceable audio tracks) per session:
 - Playback of up to 96 tracks, or a combination of playing back *and* recording up to 96 tracks, mono or stereo, at 44.1 kHz and 48 kHz
 - Playback of up to 48 tracks, or a combination of playing back *and* recording up to 48 tracks, mono tracks or stereo, at 88.2 kHz and 96 kHz
 - Playback of up to 24 tracks, or a combination of playing back *and* recording up to 24 tracks, mono or stereo, at 176.4 kHz and 192 kHz

- Up to 128 Auxiliary Input tracks
- Up to 64 Master Fader tracks
- Up to 512 MIDI tracks
- Up to 64 Instrument tracks
- A single QuickTime video track
- 16-bit, 24-bit, or 32-bit floating point audio resolution, at sample rates up to 192 kHz
- Automatic Delay Compensation (up to 16,383 samples at 48 kHz)
- Non-destructive, random-access editing and mix automation
- Audio processing with up to 10 real-time plug-ins per track, depending on your computer's capabilities
- Up to 10 hardware inserts per track
- Up to 10 sends per track
- Up to 256 internal mix busses for routing and mixing



For more information about the I/O capabilities of your audio interface with Pro Tools, see the documentation that came with your audio interface.

Supported Hardware Configurations with Pro Tools Software

Pro Tools software supports the following hardware configurations:

003 Family

Pro Tools software with 003 family hardware provides up to 18 channels of audio input and output at sample rates up to 48 kHz, and up to 10 channels of audio input and output at sample rates up to 96 kHz. A 003 system includes:

- Pro Tools software
- One of the following:
 - 003 audio and MIDI interface (with control surface)
 - 003 Rack+ audio and MIDI interface
 - 003 Rack audio and MIDI interface

Digi 002 Family

Pro Tools software with Digi 002 family hardware provides up to 18 channels of audio input and output at sample rates up to 48 kHz, and up to 10 channels of audio input and output at sample rates up to 96 kHz. A Digi 002 system includes:

- Pro Tools software
- One of the following:
 - 002 audio and MIDI interface (with control surface)
 - Digi 002 Rack audio and MIDI interface

Eleven Rack

Pro Tools software with Eleven Rack hardware provides up to 8 channels of audio input and up to 6 channels of audio output at sample rates up to 88.2 or 96 kHz. An Eleven Rack system includes:

- Pro Tools software
- Eleven Rack audio and MIDI interface, and guitar effects processor

Mbox Family

An Mbox system includes:

- Pro Tools or Pro Tools Express (3rd generation Mbox family only) software
- One of the following:
 - Mbox Pro (3rd generation): up to 8 channels of audio input and output at sample rates of 44.1 or 48 kHz; and up to 6 channels of audio input and output at sample rates up to 176.4 or 192 kHz
 - Mbox (3rd generation): up to 4 channels of audio input and output at sample rates of 44.1 or 48 kHz; and up to 2 channels of audio input and output at sample rates of 88.2 or 96 kHz
 - Mbox 2 Pro: up to 6 channels of audio input and up to 8 channels of audio output at sample rates of 44.1 or 48 kHz; and up to 4 channels of audio input and up to 6 channels of audio output at sample rates of 88.2 or 96 kHz
 - Mbox Mini (3rd generation) or Mbox 2 Mini: up to 2 channels of audio input and output at sample rates of 44.1 or 48 kHz
 - Mbox 2: up to 2 channels of audio input and output at sample rates of 44.1 or 48 kHz
 - Mbox 2 Micro: stereo output only at sample rates of 44.1 or 48 kHz

Core Audio

Pro Tools software with Core Audio-compatible hardware provides up to 32 channels of audio input and output at sample rates up to 192 kHz depending on your audio interface. A Pro Tools Core Audio system includes:

- Pro Tools software
- A third-party audio interface with supported Core Audio drivers (including Built-in Mac audio hardware)

ASIO

Pro Tools software with ASIO-compatible hardware provides up to 32 channels of audio input and output at sample rates up to 192 kHz depending on your audio interface. A Pro Tools ASIO system includes:

- Pro Tools software
- A third-party audio interface with supported ASIO drivers


Processing Capacity

The total processing capacity of a Pro Tools system depends on the processing power of your computer. Contact your dealer or visit www.avid.com for the latest system requirements and compatibility information.

Pro Tools Capabilities with Different Hardware Configurations

Pro Tools supports up to 32 channels of audio input and output, but the available input and output capabilities with Pro Tools varies depending on your audio interface. For information about the input and output capabilities of your audio interface, refer to the documentation that came with your hardware.

If you open a Pro Tools session created on a Pro Tools HD system that contains more than the number of tracks supported on your Pro Tools system, audio tracks beyond the system's voiceable track limit will be automatically set to inactive.

 *For details on transferring session material between Pro Tools HD and Pro Tools systems, see “Sharing Sessions Created on Different Pro Tools Systems” on page 402.*

Pro Tools HD with HDX Hardware Acceleration

Each system requires at least one Avid HD audio interface (sold separately). HDX systems can be expanded by adding HDX cards to increase track count and the amount of plug-in and mixer processing, and by adding additional audio interfaces.

Pro Tools HD Software Capabilities with HDX Hardware Acceleration

Pro Tools HD running with HDX hardware acceleration provides the following capabilities:

- Up to 256 channels of I/O depending on your system
- Up to a total of 768 voiced audio tracks
- Up to 512 Auxiliary Input tracks
- Up to 64 Master Fader tracks
- Up to 128 VCA Master tracks
- Up to 512 MIDI tracks
- Up to 128 Instrument tracks
- Up to 64 video tracks per session
- 16-bit, 24-bit, or 32-bit floating point audio resolution, at sample rates up to 192 kHz
- Up to 7.1 surround mixing capability
- Automatic Delay Compensation (16,348 samples at 48 kHz)
- Fixed RAM Disk Cache allocation options
- No-latency monitoring
- Non-destructive, random-access editing and mix automation
- Audio processing with up to 10 inserts per track (any combination of real-time plug-in and hardware inserts), depending on your computer's capabilities
- Up to 10 sends per track
- Up to 512 internal mix busses for routing and mixing

Audio Recording and Playback Capabilities

The number of simultaneous tracks of audio recording or playback depends on your system configuration. A Pro Tools HD system with a single HDX card provides recording and playback of 24-bit or 16-bit audio files with the following voiced track counts:

- Up to 256 tracks at 44.1 kHz or 48 kHz
- Up to 128 tracks at 88.2 kHz or 96 kHz
- Up to 64 tracks at 176.4 kHz or 192 kHz

Each additional HDX card increases the possible track count by the same amount. For example, at 44.1 kHz, two HDX cards provide up to 512 audio tracks, and three HDX cards provide up to 768 audio tracks.

Pro Tools HD with Pro Tools|HD Hardware

Each system requires at least one Avid HD audio interface (sold separately). Pro Tools|HD systems can be expanded by adding Pro Tools|HD cards to increase track count and the amount of plug-in and mixer processing, and by adding additional audio interfaces.

Pro Tools HD Software Capabilities with Pro Tools|HD Hardware

Pro Tools HD with Pro Tools|HD hardware on Mac or Windows provides the following capabilities:

- Up to 160 channels of I/O depending on your system, and the number and type of installed audio interfaces
- Up to a total of 192 voiced audio tracks (up to 768 voiceable audio tracks)
- Up to 512 Auxiliary Input tracks
- Up to 64 Master Fader tracks
- Up to 128 VCA Master tracks
- Up to 512 MIDI tracks
- Up to 128 Instrument tracks
- Up to 64 video tracks per session
- 16-bit, 24-bit, or 32-bit floating point audio resolution, at sample rates up to 192 kHz
- Non-destructive, random-access editing and mix automation
- Up to 7.1 surround mixing capability
- Automatic Delay Compensation (up to 4,095 samples at 48 kHz)
- Fixed RAM Disk Cache allocation options
- No-latency monitoring
- Audio processing with up to 10 inserts per track (in any combination of real-time plug-in and hardware inserts), depending on your computer's capabilities, and the number and type of installed audio interfaces
- Up to 10 sends per track
- Up to 256 internal mix busses for routing and mixing

Pro Tools|HD systems are available in the following configurations:

Pro Tools|HD 1

Includes:

- Accel Core (for PCIe) card or HD Core™ (for PCI) card
- Pro Tools HD software

Pro Tools|HD 2 Accel

Includes:

- Accel Core (for PCIe) card or HD Core (for PCI) card
- HD Accel card
- Pro Tools HD software

Pro Tools|HD 3 Accel

Includes:

- Accel Core (for PCIe) card or HD Core (for PCI) card
- 2 HD Accel cards
- Pro Tools HD software

Pro Tools|HD 2

Includes:

- HD Core card
- HD Process™ card
- Pro Tools HD software

Pro Tools|HD 3

Includes:

- HD Core card
- 2 HD Process cards
- Pro Tools HD software



Pro Tools|HD PCI cards require a PCI to PCIe expansion chassis. For more information, see the Expanded Systems Guide.

Expanded Pro Tools|HD Systems

You can expand your Pro Tools|HD system by adding Pro Tools|HD cards to your computer, either directly in the computer or using an expansion chassis. Expanding your Pro Tools system provides increased track counts, adds to the amount of possible plug-in and mixer processing, and lets you connect additional audio interfaces. With support for up to 7 Pro Tools|HD cards in a single system, a Pro Tools|HD system can support up to 160 channels of simultaneous input and output.



For more information, see the Expanded Systems Guide.

Pro Tools HD Software with HD Native Hardware

Each system requires at least one Avid HD audio interface (sold separately). HD Native systems can be expanded by adding additional HD audio interfaces.

Pro Tools HD systems with HD Native hardware consist of the following:

- One of the following:
 - HD Native PCIe card
 - HD Native Thunderbolt interface
- Pro Tools HD software
- An authorized iLok for running Pro Tools HD or Pro Tools
- One or more Avid HD audio interfaces (sold separately)
- DigiLink Mini cable for connecting HD Native hardware to an audio interface
- A MIDI interface (optional)



For detailed information about installing HD Native PCIe hardware, see the HD Native Installation Guide.

For information about installing HD Native Thunderbolt hardware, see the HD Native Thunderbolt Guide.

Pro Tools HD Software Capabilities with HD Native Hardware

Pro Tools HD with HD Native hardware on Mac or Windows provides the following capabilities:

- Up to 64 channels of I/O depending on your system, and the number and type of installed audio interfaces
- Up to a total of 256 voiced audio tracks (up to 768 voiceable audio tracks):
 - Up to 256 voices at 44.1 kHz or 48 kHz
 - Up to 128 voices at 88.2 kHz or 96 kHz
 - Up to 64 voices at 176.4 kHz or 192 kHz
- Up to 512 Auxiliary Input tracks
- Up to 64 Master Fader tracks
- Up to 128 VCA Master tracks
- Up to 512 MIDI tracks
- Up to 128 Instrument tracks
- Up to 64 video tracks per session
- 16-bit, 24-bit, or 32-bit floating point audio resolution, at sample rates up to 192 kHz
- Non-destructive, random-access editing and mix automation
- Up to 7.1 surround mixing capability
- Automatic Delay Compensation (up to 16,348 samples at 48 kHz)
- Fixed RAM Disk Cache allocation options
- FPGA-based low latency monitoring (LLM)

- Audio processing with up to 10 inserts per track (in any combination of real-time, host-based plug-in and hardware inserts), depending on your computer's capabilities, and the number and type of installed audio interfaces
- Up to 10 sends per track
- Up to 256 internal mix busses for routing and mixing

Supported Avid HD Audio Interfaces

The following Avid HD audio interfaces are compatible with Avid HDX, Pro Tools|HD, and HD Native hardware:

- HD I/O
- HD OMNI
- HD MADI
- 192 I/O
- 192 Digital I/O
- 96 I/O
- 96i I/O



Avid HDX, Pro Tools|HD, and HD Native systems require at least one HD I/O, HD OMNI, HD MADI, 192 I/O, 192 Digital I/O, 96 I/O, or 96i I/O.

Maximum I/O Configuration with HDX

HDX supports up to a maximum combination of 12 total of the following audio interfaces:

- HD OMNI (only 1 HD OMNI interface is supported in a single system)
- HD I/O (up to 12 HD I/O interfaces can be used simultaneously—requires 3 HDX cards)
- HD MADI (up to 3 HD MADI interfaces can be used simultaneously—requires 3 HDX cards)

Maximum I/O Configuration with Pro Tools|HD

Pro Tools|HD systems support up to a maximum combination of 10 total of the following audio interfaces:

- HD OMNI (only 1 HD OMNI interface is supported in a single Pro Tools|HD system)
- HD I/O (up to 10 HD I/O interfaces can be used simultaneously—requires 5 HD cards)
- HD MADI (up to 3 HD MADI interfaces can be used simultaneously—requires 6 HD cards)
- 192 I/O (up to 10 192 I/O interfaces can be used simultaneously—requires 5 HD cards)
- 192 Digital I/O (up to 10 192 Digital I/O interfaces can be used simultaneously—requires five HD cards)
- 96 I/O (up to 10 96 I/O interfaces can be used simultaneously—requires 5 HD cards)
- 96i I/O (up to 5 96i I/O interfaces can be used simultaneously—requires 5 HD cards)

Maximum I/O Configuration with HD Native

HD Native supports up to a maximum combination of up to 4 total of the following audio interfaces:

- HD OMNI (only 1 HD OMNI interface is supported in a single HD Native system)
- HD I/O (up to 4 HD I/O interfaces can be used simultaneously)
- HD MADI (full connectivity with 1 HD MADI interface is possible when both DigiLink ports of the HD MADI are connected to both DigiLink ports on the HD Native PCIe card or Thunderbolt interface)
- 192 I/O (up to 4 192 I/O interfaces can be used simultaneously)
- 192 Digital I/O (up to 4 192 Digital I/O interfaces can be used simultaneously)
- 96 I/O (up to 4 96 I/O interfaces can be used simultaneously)
- 96i I/O (up to 2 96i I/O interfaces can be used simultaneously)

Playback, Recording, and Voice Limits with Pro Tools HD

The table below lists the audio playback, recording, and voiceable track limits with Pro Tools HD software with HDX, Pro Tools|HD, HD Native, Core Audio, and ASIO hardware (including Pro Tools with Complete Production Toolkit). *Playback and recording voices* refers to the number of unique simultaneous playback and record tracks on your system. *Total voiceable tracks* refers to the maximum number of audio tracks that can share the available voices on your system. (Mono tracks take up one voice. Stereo and multichannel tracks take up one voice per channel.)

With HDX hardware accelerated and Pro Tools|HD systems, voice limits are dependent on the session sample rate and the number of DSP chips dedicated to the system’s Playback Engine. Pro Tools HD can open sessions with up to 768 audio tracks, but any audio tracks beyond that system’s voiceable track limit will be automatically set to Voice Off.

Pro Tools HD audio playback, recording and voice limits by hardware configuration

Core System Type	Maximum I/O	Sample Rate (kHz)	Playback and Recording Voices (Mono Tracks of Simultaneous Playback and Recording)	Total Voiceable Tracks
HDX, 1 card	64 channels	44.1/48	256	768
		88.2/96	128	768
		176.4/192	64	768
HDX, 2 cards	128 channels	44.1/48	512	768
		88.2/96	256	768
		176.4/192	128	768
HDX, 3 cards	192 channels	44.1/48	1024	768
		88.2/96	512	768
		176.4/192	128	768

Pro Tools HD audio playback, recording and voice limits by hardware configuration

Core System Type	Maximum I/O	Sample Rate (kHz)	Playback and Recording Voices (Mono Tracks of Simultaneous Playback and Recording)	Total Voiceable Tracks
Pro Tools HD 1	32 channels	44.1/48	96	768
		88.2/96	48	768
		176.4/192	24	768
Pro Tools HD 2, Pro Tools HD 3, or any expanded Pro Tools HD system	64 channels (HD 2) 96 channels (HD 3) or up to 160 channels (HD 5)	44.1/48	192	768
		88.2/96	96	768
		176.4/192	36	768
HD Native	64 channels	44.1/48	256	768
		88.2/96	128	768
		176.4/192	64	768
Core Audio and ASIO (Pro Tools HD or Pro Tools with Complete Production Toolkit)	32 channels	44.1/48	256	768
		88.2/96	128	768
		176.4/192	64	768

Avid HD Audio Interface Features

The following table lists the input and output capabilities of the various Avid HD audio interfaces for Avid HDX, Pro Tools|HD, and HD Native systems. Each HDX card in your system supports a maximum of 64 channels of I/O. Each Pro Tools|HD card supports a maximum of 32 channels of I/O. HD Native hardware supports a maximum of 64 channels of I/O. To record and play audio with Pro Tools HD with any of these hardware configurations, you must have at least one Avid HD audio interface connected to the first port of the first card (or Thunderbolt interface) in the system.

Avid HD audio interface channel capabilities

Interface Type	Number of I/O Channels	Sample Rates (kHz)	A/D Conversion	D/A Conversion	Digital I/O
HD I/O	16 in/16 out	44.1, 48, 88.2, 96, 176.4, 192	24-bit	24-bit	24-bit
HD OMNI	8 in/8 out	44.1, 48, 88.2, 96, 176.4, 192	24-bit	24-bit	24-bit
HD MADI	64 in/64 out	44.1, 48, 88.2, 96, 176.4, 192	None	None	24-bit
192 I/O	8 in/8 out	44.1, 48, 88.2, 96, 176.4, 192	24-bit	24-bit	24-bit
192 Digital I/O	8 in/8 out	44.1, 48, 88.2, 96, 176.4, 192	None	None	24-bit
96 I/O	8 in/8 out	44.1, 48, 88.2, 96	24-bit	24-bit	24-bit
96i I/O	16 in/2 out	44.1, 48, 88.2, 96	24-bit	24-bit	24-bit

HD OMNI Audio Interface


HD OMNI is a professional digital audio interface designed for use with Avid HD systems. HD OMNI provides a compact preamp, monitoring, and I/O solution for music production and recording, and post production studios.

HD OMNI Features

HD OMNI provides up to 8 discrete channels of Pro Tools input and output, with 4-segment LED meters for input or output (selectable).

Analog I/O

- 24-bit analog-to-digital (A/D) and digital-to-analog (D/A) converters, with support for sample rates up to 192 kHz
- 2 high-quality Mic/DI preamps (Channels 1–2)
- 2 combined XLR and 1/4-inch TRS front panel inputs for microphone and instrument level input
- 2 XLR back panel microphone inputs
- 2 1/4-inch TRS Send and 2 1/4-inch TRS Return back panel jacks for hardware inserts on channels 1 and 2
- 4 analog TRS line level back panel inputs (Channels 1–4)

 *HD OMNI provides multiple analog input connections, but only provides up to four channels of simultaneous analog input for Pro Tools.*

- Soft Clip and Curv limiting circuits to protect against clipping on analog input
- 8 channels of analog back panel output using a DB-25 breakout cable (sold separately) with variable output gain
- 2 channels of analog back panel output using TRS (Mirrors channels 1–2 or 7–8 on DB-25 connector)

- Front panel stereo 1/4-inch headphone jack

Digital I/O

- 8 channels of AES/EBU output (up to 192 kHz Single Wire) using a DB-25 breakout cable (sold separately)
- 2 channels of AES/EBU XLR input (up to 192 kHz Single Wire)
- 2 channels of S/PDIF RCA input and output (up to 192 kHz)
- 8 channels of ADAT TOSLINK input and output
- Support for ADAT S/MUX Optical for sample rates of 88.2 kHz, 96 kHz, 176.4 kHz, and 192 kHz
- Support for two channels of S/PDIF Optical with sample rates of up to 96 kHz
- Real-time sample rate conversion (SRC) on Digital Inputs 1–2 of either AES/EBU, S/PDIF, or Optical (S/PDIF)


 *SRC is not supported with ADAT S/MUX.*

Monitoring

- An additional stereo “CUE” output path in Pro Tools® for headphone monitoring from the front panel headphone jack
- Front panel Control Room (MAIN/ALT) and Headphone monitoring volume control
- Flexible monitoring with fold-down from all stereo and surround formats (up to 7.1 surround)
- Input mixer for low latency direct monitoring of a variety of incoming signals (configured in the Pro Tools Hardware Setup)

Synchronization

- Loop Sync input and output for connecting additional Pro Tools|HD interfaces and peripherals
- External Clock input and output for synchronizing HD OMNI with external Word Clock devices

 *For more information, see the HD OMNI Guide.*

HD I/O Audio Interface

HD I/O is a multichannel digital audio interface designed for use with Avid HD systems. HD I/O features extremely high quality 24-bit analog-to-digital (A/D) and digital-to-analog (D/A) converters, and supports sample rates of up to 192 kHz.

HD I/O comes in three standard configurations:

- 8 x 8 x 8 (8 analog in, 8 analog out, and 8 digital in and out)
- 16 x 16 analog in and out
- 16 x 16 digital in and out

You can also add or remove HD I/O Analog Expansion cards (ADC and DAC) and HD I/O Digital Expansion cards for custom configurations.

HD I/O Features

HD I/O provides up to 16 discrete channels of Pro Tools input and output, with 4-segment LED meters for input and output.

Analog I/O

- Up to sixteen channels of 24-bit D/A and A/D converters for superior analog input and output at sample rates of 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, and 192 kHz with Analog In and Analog Out HD I/O cards
- Soft Clip and Curv limiting circuits to protect against clipping on analog input

Digital I/O


- Up to sixteen channels of 24-bit digital I/O, using AES/EBU, TDIF DB-25, or Optical at sample rates of 44.1, 48, 88.2, 96, 176.4, and 192 kHz with a Digital HD I/O card
- Real-time sample rate conversion on digital inputs with a Digital I/O card (up to sixteen channels of AES/EBU, Optical, or TDIF)
- Support for S/MUX Optical for sample rates of 88.2 kHz and higher
- Support for 2 channels of S/PDIF Optical (enclosed) with sample rates of up to 96 kHz
- 2 channels of AES/EBU I/O (enclosed) with support for sample rates up to 192 kHz
- 2 channels of 24-bit-capable S/PDIF I/O (enclosed) with support for sample rates up to 192 kHz

Synchronization

- Loop Sync input and output for connecting additional Avid HD audio interfaces and peripherals
- External Clock input and output for synchronizing HD I/O with external Word Clock devices

Expandability

- Optional addition of I/O cards to expand analog or digital I/O
- Simultaneous use of multiple Avid HD audio interfaces to further expand system input and output

 *For more information, see the HD I/O Guide.*


HD MADI Digital Audio Interface

HD MADI is a 64-channel, digital audio interface designed for use with Avid HD systems.

HD MADI supports the Multichannel Audio Digital Interface (MADI) format and sample rates of up to 192 kHz. HD MADI provides simplified connectivity between your Avid HD system and MADI-compatible audio equipment.

HD MADI Features

- 2 MADI Optical and Coaxial inputs and 2 MADI Optical and Coaxial outputs for up to 64 discrete channels of digital input and output (32 channels per DigiLink Mini port)
- Supports sample rates of 44.1, 48, 88.2, 96, 176.4, and 192 kHz
- 24- or 16-bit resolution
- Sample Rate Conversion (SRC) on input or output
- Front panel clock and SRC indicators
- Front panel signal present LEDs for input and output
- BNC Word Clock I/O for synchronizing HD MADI with external 1x Word Clock
- BNC Loop Sync I/O for synchronizing HD MADI with additional Avid HD audio interfaces and peripherals (such as HD I/O, HD OMNI, or SYNC HD)
- Dedicated BNC Word Clock input and XLR AES/EBU input (clock input only) for external MADI synchronization (when using SRC on output)
- Clock support for the following formats: Internal, Loop Sync, Word Clock, AES/EBU, and MADI
- Varispeed modes (supports both 64- and 56-channel standards)

 For more information, see the *HD MADI Guide*.

192 I/O Audio Interface

192 I/O is a multichannel digital audio interface designed for use with Avid HD systems. 192 I/O features high quality 24-bit analog-to-digital (A/D) and digital-to-analog (D/A) converters, and supports sample rates of up to 192 kHz.

You can also add or remove analog cards (ADC and DAC) and digital cards for custom configurations.

192 I/O Features

- Supports sample rates up to 192 kHz
- Supports both analog and digital connections, including AES/EBU, S/PDIF, TDIF, and ADAT Optical:
 - Digital (Digital I/O Card): 8 channels, DB-25 (AES/EBU and TDIF), or one pair of Lightpipe (ADAT Optical) connectors; Expandable up to 16 of channels digital I/O with the addition of the 192 Digital expansion card
 - Analog: 8 channels, DB-25 (balanced) connectors, inputs selectable between +4 dBu or –10 dBV, outputs +4 dBu only; Expandable up to 16 analog inputs or 16 outputs using an optional 192 AD or 192 DA expansion card, respectively
 - Digital (Enclosure): 2 channels, XLR (AES/EBU) connectors; 2 channels RCA (S/PDIF) connectors
 - Optical (Enclosure): 8 channels, one pair of Lightpipe (ADAT Optical) connectors (switchable to 2 channels, S/PDIF)
- Loop Sync In and Out for connecting Avid HD interfaces and peripherals
- External Clock In and Out receive or send 1x Word clock

 For more information, see the *192 I/O Guide*.

192 Digital I/O Audio Interface

192 Digital I/O is a multichannel digital audio interface designed for use with Avid HD systems, and supports sample rates of up to 192 kHz.

192 Digital I/O Features

- Supports sample rates up to 192 kHz
- Supports digital connections, including AES/EBU, S/PDIF, TDIF, and ADAT Optical:
 - Digital (2 Digital I/O Cards): 16 channels, DB-25 (AES/EBU and TDIF), or two pairs of Lightpipe (ADAT Optical) connectors
 - Digital (Enclosure): 2 channels, XLR (AES/EBU) connectors; 2 channels RCA (S/PDIF) connectors
 - Optical (Enclosure): 8 channels, one pair of Lightpipe (ADAT Optical) connectors (selectable to 2 channels, S/PDIF)
- Loop Sync In and Out for connecting Avid HD interfaces and peripherals
- External Clock In and Out receive or send 1x Word clock



For more information, see the 192 Digital I/O Guide.

96 I/O Audio Interface

96 I/O is a multichannel digital audio interface designed for use with Avid HD systems. 96 I/O features high quality 24-bit analog-to-digital (A/D) and digital-to-analog (D/A) converters, and supports sample rates of up to 96 kHz.

96 I/O Features

- Supports sample rates up to 96 kHz
- Supports analog and digital connections, including AES/EBU, S/PDIF, and ADAT optical:
 - Analog: 8 channels, 1/4-inch TRS (balanced or unbalanced) connectors, +4 dBu or –10 dBV
 - Digital: 2 channels, XLR (AES/EBU) connectors; 2 channels, RCA (S/PDIF) connectors
 - Optical: 8 channels, one pair of Lightpipe (ADAT Optical) connectors (switchable to 2 channels, S/PDIF)
- Loop Sync In and Out for connecting Avid HD interfaces and peripherals
- External Clock In and Out receive or send 1x Word clock



For more information, see the 96 I/O Guide.

96i I/O Audio Interface

96i I/O is a multichannel digital audio interface designed for use with Avid HD systems. 96i I/O features high quality 24-bit analog-to-digital (A/D) and digital-to-analog (D/A) converters, and supports sample rates of up to 96 kHz.

96i I/O Features

- Supports sample rates up to 96 kHz
- 16 discrete channels of input, and 2 channels of output, with 4-segment LED meters on each channel. Audio inputs and outputs include:
 - 16 channels of 24-bit, 96-kHz capable analog input, with adjustable input sensitivity
 - 2 channels of 24-bit, 96-kHz capable analog output, with selectable operating level
 - 2 channels of 24-bit, 96 kHz-capable digital S/PDIF RCA input and output
- Loop Sync In and Out for connecting Avid HD interfaces and peripherals
- External Clock In and Out receive or send 1x Word clock



For more information, see the 96i I/O Guide.

Additional Pro Tools Hardware Options

Pro Tools software systems also supports the following Pro Tools hardware options.

- PRE (Eight-channel microphone preamp)
- Eleven Rack (guitar processor)
- MIDI I/O (10 x 10 USB MIDI interface)
- Worksurfaces and MIDI control surfaces:
 - Avid Artist Series controllers
 - Avid Pro Series controllers
 - C|24
 - Command|8
 - M-Audio Keyboards (such as Axiom Pro)
 - Third-party MIDI controllers (such as Mackie HUI, Peavey PC-1600, or CM Labs Motor Mix)

Additional Pro Tools HD Hardware Options

Pro Tools HD also supports the following Avid HD hardware options.

- Synchronization peripherals (Avid HDX, Pro Tools|HD and HD Native systems only):
 - SYNC HD
 - SYNC I/O
- PRE (Eight-channel microphone preamp)
- Eleven Rack (guitar processor)
- MIDI I/O (10 x 10 USB MIDI interface)
- Worksurfaces and MIDI control surfaces:
 - Avid Artist Series controllers
 - Avid Pro Series controllers
 - C|24
 - Command|8
 - D-Command
 - D-Control
 - M-Audio Keyboards (such as Axiom® Pro)
 - Surround Panner Option
 - Third-party MIDI controllers (such as Mackie HUI, JL Cooper CS-10, CM Labs Motor Mix, or Peavey PC-1600)

Pro Tools HD Software Options

Avid HDX and Pro Tools|HD Systems with HEAT

Avid HDX and Pro Tools|HD systems that have been upgraded with the HEAT software option. HEAT (Harmonically Enhanced Algorithm Technology) is a paid software option that adds “analog color” to Avid HDX and Pro Tools|HD systems. For more information, see the *HEAT Software Option Guide*.

Avid HDX, Pro Tools|HD and HD Native Systems with MachineControl

The MachineControl™ software option for Pro Tools HD is supported with Avid HDX, Pro Tools|HD, and HD Native systems. MachineControl is a paid software option for Pro Tools HD that enables serial communication with Sony® 9-pin compatible synchronizers, and video or audio machines. For more information, see the *MachineControl Guide*.

Avid HDX, Pro Tools|HD, and HD Native Systems with Satellite Link

The Satellite Link option for Pro Tools HD is supported with Avid HDX, Pro Tools|HD, and HD Native systems. Avid Satellite Link is a paid option that lets you link up to 12 Pro Tools systems (or up to 11 Pro Tools systems and an Avid Media Composer®, Avid Symphony Nitris DX®, or Video Satellite LE system) over an Ethernet network so that you can cue, play, and stop the transports, make play selections, and solo tracks across any of the systems from any linked workstation. For more information, see the *Satellite Link Guide*.

Avid HDX, Pro Tools|HD, and HD Native Systems with Video Satellite Link

The Video Satellite Link option for Pro Tools HD is supported with Avid HDX, Pro Tools|HD, and HD Native systems. Video Satellite is a paid software option for Pro Tools HD that lets you link your Avid HDX, Pro Tools|HD, or HD Native system with a separate computer running Avid Media Composer or Symphony Nitris DX software for synced video playback, capture, and conversion. For more information, see the *Video Satellite Guide*.

Avid HDX, Pro Tools|HD, and Pro Tools|HD Native Systems with Video Satellite LE

The Video Satellite LE option for Pro Tools is supported with Avid HDX, Pro Tools|HD, and HD Native systems. Video Satellite LE is a paid software option for Pro Tools HD, which uses a separate computer running Pro Tools software for synchronized QuickTime HD video playback. For more information, see the *Video Satellite LE Guide*.

Pro Tools with VENUE Link

For Pro Tools systems that are connected to VENUE systems using ethernet, VENUE Link provides Pro Tools and VENUE system integration and interoperability.

Complete Production Toolkit

The Complete Production Toolkit software option for Pro Tools provides increased voice and track counts, and surround mixing, editing, and automation capabilities that are equal to Pro Tools HD. More specifically, Complete Production Toolkit enables the following features in Pro Tools:

- Surround mixing, editing, and automation up to 7.1 (depending on the output capabilities of your audio interface)



Use the Avid Down Mixer plug-in for monitoring surround sessions in stereo with audio interfaces that have fewer than six outputs.

- Up to a total of 256 voiced audio tracks (up to 768 voiceable audio tracks)



Pro Tools with Complete Production Toolkit displays up to 768 tracks, with a simultaneous voice limit of 256 tracks. Tracks in excess of the 256-voice limit are made inactive.

- Playback of up to or a combination of playing back *and* recording up to 256 mono tracks or 128 stereo tracks (256 available voices) at 44.1 kHz and 48 kHz
- Playback of up to or a combination of playing back *and* recording up to 128 mono tracks or 64 stereo tracks (128 available voices) at 88.2 kHz and 96 kHz
- Playback of up to or a combination of playing back *and* recording up to 64 mono tracks or 32 stereo tracks (64 available voices) at 176.4 kHz and 192 kHz
- Up to 512 Auxiliary Input tracks per session
- Up to 128 Instrument tracks
- Fixed RAM Disk Cache allocation options
- TrackInput monitoring
- Ability to use QuickPunch™ on up to 64 tracks
- TrackPunch recording
- DestructivePunch recording
- Advanced Group dialog:
 - VCA assignments
 - Attributes tab
 - Follow globals
- Momentary Solo Latch Back/Forward commands
- Custom Shuttle Lock speeds
- Numeric Keypad set to Shuttle mode
- AutoFades
- Advanced editing features:
 - Continuous Scrolling
 - Scrub Trim tool
 - Replace Clip command
 - Convert Clip Gain and Track Volume Automation
 - Coalesce Clip Gain and Track Volume Automation

- TCE Edit to Timeline Selection command
- Selection of alternate field recorder audio channels in the Pro Tools Timeline
- Expanding alternate field recorder channels to new tracks
- Advanced automation features:
 - AutoJoin with Latch mode
 - Touch/Latch mode
 - Trim mode
 - Composite automation playlist
 - Copy track automation to sends
 - AutoMatch
 - Prime controls for writing automation in Latch mode
 - Glide automation
 - Trim automation
 - Write automation to Start, End, or All
 - Write automation to next breakpoint or punch point
 - Overwrite or extend Mute automation
 - Snapshot automation
 - Preview automation
 - Capture automation
 - VCA Master track automation
- Advanced video features:
 - Multiple video tracks
 - Multiple video playlists
 - Video editing
- Preferences
 - Back/Forward Amount
 - Shuttle
 - Auto Clip Fade In/Out Length
 - Use Absolute Pan Linking
 - Suppress Automation “Write To” Warning
 - Allow Latch Prime in Stop
 - Coalesce when Removing Slaves from VCA Group
 - Standard VCA Logic for Group Attributes
 - Include Sends in Trim Mode
 - AutoGlide Time
 - Coalesce Trim Automation Options
- D-Control support
- D-Command support



For information about using D-Control and D-Command worksurfaces with Pro Tools, see the D-Control and D-Command Guides.

Pro Tools Express Software

Pro Tools Express software provides the following capabilities, depending on your hardware configuration:

- Up to a total of 16 voiced mono or stereo audio tracks per session
- Up to 8 Auxiliary Input tracks
- Up to 8 Master Fader tracks
- Up to 16 MIDI tracks
- Up to 8 Instrument tracks
- A single QuickTime video track
- 16-bit, 24-bit, or 32-bit floating point audio resolution, at sample rates up to 96 kHz (depending on your audio interface)
- Automatic Delay Compensation (up to 16,383 samples at 48 kHz)
- Non-destructive, random-access editing and mix automation
- Audio processing with up to 5 real-time plug-ins per track, depending on your computer's capabilities
- Up to 5 hardware inserts per track
- Up to 5 sends per track
- Up to 16 internal mix busses (mono or stereo) for routing and mixing
- Support for M-Audio HyperControl and DirectLink



For information about the I/O capabilities of your audio interface, see the documentation that came with the interface.

Pro Tools Features Not Supported with Pro Tools Express

Pro Tools Express software does *not* support the following Pro Tools features:

- Complete Production Toolkit
- MP3 export
- Import and Export of AAF, OMF, and MXF
- Beat Detective
- Advanced Import Session Data features
- Variable Pan Depth
- Field Recorder features
- Destructive Record
- Track Punch and Destructive Punch recording
- Timecode and Feet+Frames rulers
- Machine Control and MIDI Machine Control
- EUCON
- Control surfaces (other than those that use M-Audio HyperControl and DirectLink)
- Mic Preamps
- Satellite Link, Video Satellite Link, and Video Satellite Link LE
- VENUE Link
- Clip Gain
- Core Audio and ASIO engine
- Advanced Editing features:
 - Scrub Trim
 - Replace Clips
 - Fit To Marks
 - Matching Channels
 - Video Editing
 - Back and Play
 - Auto Fades

- Advanced Automation features:
 - Punch
 - Capture
 - Write on Stop
 - Write to All
 - Back and play
 - Glide Automation
 - Copy to Send
 - Auto Join
 - Auto Match
 - Preview

Checking for Software Updates

Pro Tools can check for Pro Tools application and plug-in updates, either automatically or manually. An internet connection is required to check for updates. Approximately every two weeks, Pro Tools checks online for any available application and plug-in updates.

If updates are available for Pro Tools or any plug-ins, Pro Tools reports what updates (if any) are available and how important the updates are for your system. You can visit the Avid website to locate, download, and install the appropriate updates for your Pro Tools system.

To manually check for updates:

- 1 Launch Pro Tools.
- 2 Choose Help > Check For Updates.
- 3 Do one of the following:
 - If no updates are available, click OK.
 - If updates are available, do one of the following:
 - Click Details to launch your web browser and see what updates are available for download.
 - Click Not Now if you do not want to review or download updates until later.

To disable automatic checking for updates:

- In the Software Update dialog, select the Do Not Check For Updates Automatically option.

To enable automatic checking for updates:

- 1 Choose Help > Check For Updates.
- 2 In the Software Update dialog, deselect the Do Not Check For Updates Automatically option.

Chapter 6: System Setup

You can review and update the setup of your system to ensure it is configured for your needs.

Starting Up or Shutting Down Your System

To ensure that the components of your Pro Tools system communicate properly with each other, you need to start them in a particular order.

Start up your Pro Tools system in this order:

- 1 Make sure all your equipment (including your computer) is off.
- 2 Lower the volume of all output devices in your system.
- 3 For systems with an expansion chassis, turn on the chassis.
- 4 Turn on any external hard drives. Wait approximately ten seconds for them to spin up to speed.
- 5 Turn on any worksurfaces (such as D-Command) or control surfaces (such as Command8).
- 6 Turn on any MIDI interfaces, MIDI devices, or synchronization peripherals.

- 7 Do one of the following, depending on your Pro Tools system:

- For Avid HDX, Pro Tools|HD, and HD Native systems, with the volume of all output devices lowered, turn on your audio interfaces (such as HD OMNI or 192 I/O). Wait at least fifteen seconds for your system hardware to initialize.
- For Pro Tools systems that use hardware requiring external power (such as 003), with the volume of all output devices lowered, turn on the hardware.

- 8 Turn on your computer.

- 9 Launch Pro Tools or any third-party audio or MIDI applications.

Shut down your Pro Tools system in this order:

- 1 Quit Pro Tools and any other running applications.



To quit Pro Tools, choose File > Exit (Windows) or Pro Tools > Quit (Mac).

- 2 Turn off or lower the volume of all output devices in your system.
- 3 Turn off your computer.

- 4 Do one of the following depending on your Pro Tools system:
 - For Avid HDX, Pro Tools|HD, and HD Native systems, turn off your Pro Tools audio interfaces.
 - For Pro Tools systems that use hardware requiring external power (such as 003), turn off the hardware.
- 5 For systems with an expansion chassis, turn off the chassis.
- 6 Turn off any MIDI interfaces, MIDI devices, or synchronization peripherals.
- 7 Turn off any worksurfaces (such as D-Command) or control surfaces (such as Command|8).
- 8 Turn off any external hard drives.

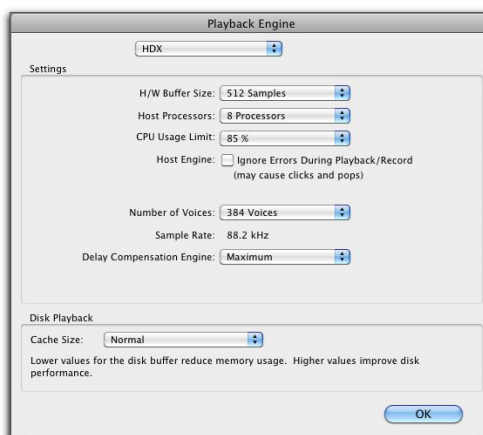
Checking an Avid HDX, Pro Tools|HD, or HD Native System with DigiTest

Before you use Pro Tools, you may want to run the DigiTest diagnostic application to ensure that all Avid HDX or Pro Tools|HD cards in the system are recognized, installed in the proper order, and have valid TDM connections. You can also use DigiTest to validate your HD Native PCIe card or Thunderbolt interface. See the *Avid DigiTest Guide* for more information.

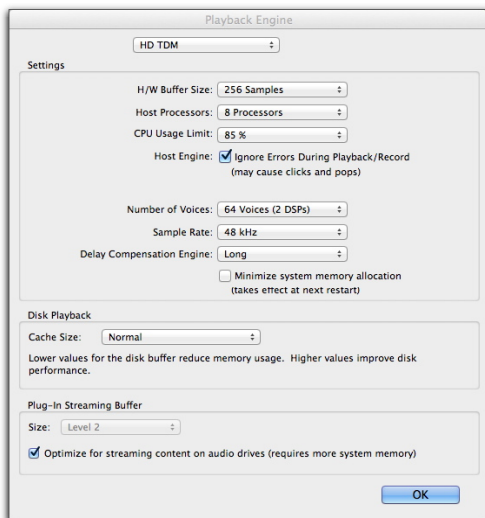
Configuring Pro Tools System Settings

Pro Tools lets you adjust the performance of your system by changing *system settings* that affect its capacity for processing, playback, and recording. These system settings are available in the Playback Engine (Setup > Playback Engine).

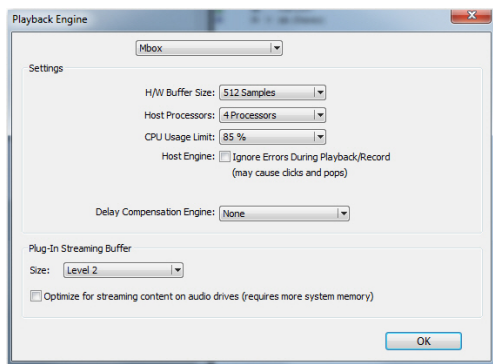
In most cases, the default settings for your system provide optimum performance, but you may want to adjust them to accommodate large or processing-intensive Pro Tools sessions.



Playback Engine for a Pro Tools HD system with HDX hardware acceleration



Playback Engine for Pro Tools|HD system



Playback Engine for Pro Tools with Mbox (3rd generation)

Current Engine

In the Playback Engine dialog, Pro Tools lets you select the audio engine for use with your audio interfaces. The available options are determined by which audio interfaces are connected and have compatible drivers installed.


Changing the Current Engine setting can be useful if you have multiple audio interfaces connected to your computer with different routing configurations in your studio, or if you want to prepare a session for use with a specific interface on a different system (for example, you might want to prepare a session created on your Pro Tools|HD system for use with the built-in audio on your Mac laptop).

To select which audio engine for Pro Tools uses:

- 1 Choose Setup > Playback Engine.
- 2 From the Current Engine selector, select your audio interface:
 - For Avid HDX, Pro Tools|HD, and HD Native systems, use the default setting of HDX, HD TDM, or HD Native.
 - For supported Avid audio interfaces (such as the Mbox Pro), selecting the name of the corresponding interface uses the Direct I/O engine for Pro Tools.
 - For third-party audio interfaces with compatible CoreAudio (Mac) or ASIO (Windows), select the name of the corresponding Core Audio (Mac) or ASIO (Windows) compatible audio interface.
 - On Mac systems, if you are using built-in audio, select any of the available built-in options for playback or select Pro Tools Aggregate I/O for simultaneous input and output with the built-in I/O hardware options.
- 3 Click OK.

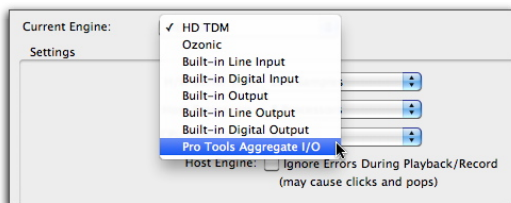
When changing engines with a Pro Tools session open, Pro Tools must close and relaunch the session to initialize the new engine.

On Avid HDX and Pro Tools|HD systems, changing engines requires that you quit and relaunch Pro Tools for the new setting to take effect.

 *When changing engines on any Pro Tools system, you may need to reset the default I/O settings to match the selected audio interface.*


Pro Tools Aggregate I/O (Mac Only)

On Mac systems using Core Audio, you can use Pro Tools with the built-in audio inputs and outputs on your Mac by selecting any of the available built-in inputs and outputs, or by selecting the Pro Tools Aggregate I/O option for using a combination of built-in inputs and outputs simultaneously (for recording and monitoring).



Selecting Pro Tools Aggregate I/O in the Playback Engine (Mac only)

You can configure the Input and Output options for Pro Tools Aggregate I/O in the Mac Audio Setup, which can be accessed from the Pro Tools Hardware Setup.

 *If you need simultaneous input (recording) and output (playback and monitoring) with Pro Tools using the built-in audio options on Mac, use the Pro Tools Aggregate I/O option. If you only need to play back audio for editing and mixing, select the appropriate built-in audio output option.*

Hardware Buffer Size

The Hardware Buffer Size (H/W Buffer Size) in the Playback Engine controls the size of the buffer used to handle host processing tasks such as processing with host-based, or “Native” plug-ins (AAX and RTAS).

- Lower Hardware Buffer Size settings are useful for improving latency issues in certain recording situations or for improving certain system performance problems:
 - On all Pro Tools systems, lower settings reduce MIDI-to-audio latency (such as when playing a virtual instrument live and monitoring the instrument’s output). Lower settings can also improve screen response or the accuracy of plug-in and mute automation data.
 - On host-based Pro Tools systems, lower settings reduce all input-to-output monitoring latency on any record-armed tracks or Auxiliary Input tracks with live inputs.
 - On Avid HDX and Pro Tools|HD systems, lower settings reduce monitoring latency that occurs on tracks that have one or more Native plug-ins. Lower settings can also improve the accuracy of MIDI track timing on systems without a MIDI interface that supports time stamping. Lower settings also improve MIDI track timing on tracks using MIDI virtual instruments that do not support time stamping.
- Higher Hardware Buffer Size settings are useful for sessions that are using more Native plug-ins for playback. These settings allow for more audio processing. They can also be useful to reduce errors on machines that require a higher buffer size.

To change the Hardware Buffer Size:

- 1 Choose Setup > Playback Engine.
- 2 From the H/W Buffer Size pop-up menu, select the audio buffer size, in samples.
- 3 Click OK.

Host Processors

The Host Processors setting in the Playback Engine determines the number of processors in your computer allocated for Native (AAX and RTAS) plug-in processing and other host processing tasks.

With computers that have multiple processors, or that feature multi-core processing or hyperthreading, this setting lets you enable multiprocessor support for host processing tasks. Used in combination with the CPU Usage Limit setting, the Host Processors setting lets you control the way host-processing tasks are handled by the system.

For example:

- For sessions with large numbers of Native plug-ins, you can allocate 2 or more processors to Native processing and set a high CPU Usage Limit.
- For sessions with few Native plug-ins, you can allocate fewer processors to host-based processing and set a low CPU Usage Limit to leave more CPU resources available for automation accuracy, screen response, and video.
- Increase these settings to accommodate DSP-to-Native plug-in conversion. Conversely, decrease these settings if you are only using DSP plug-ins or are converting Native plug-ins to DSP. DSP-to-Native conversion can be desirable during recording, depending on latency, voicing needs, and record-monitoring capabilities of the specific DSP and Native plug-ins.

- Depending on the importance of video and overall screen response, and on the density of automation being employed, try different combinations of Host Processors and CPU Usage Limit settings to achieve the best results. For example, to improve screen response in a medium-sized session using a moderate number of Native plug-ins, try reducing the number of Native plug-ins, but keep the CPU Usage Limit set to the maximum (up to 99% on a single-processor system).

To set the number of Host Processors:

- 1 Choose Setup > Playback Engine.
- 2 From the Host Processors pop-up menu, select the number of available processors you want to allocate. The number of available processors depends on your computer:
 - Select 1 Processor to limit host processing for Pro Tools to one CPU in the system.
 - Choose 2 Processors to enable load balancing across two available processors for Pro Tools host processing tasks.
 - On systems running four or more processors, choose the number of processors for Pro Tools host processing tasks.
- 3 Click OK.

System Usage Window and Host Processing

The System Usage window (Windows > System Usage) displays the combined amount of host processing occurring on all enabled processors with a single indicator, regardless of how many processors are available in the system. If the System Usage Window shows that you are at the limit of available resources, increase the number of Host Processors and adjust the CPU Usage Limit setting. (For more information, see “System Usage” on page 85.)


CPU Usage Limit

The CPU Usage Limit setting in the Playback Engine controls the percentage of CPU resources allocated to Pro Tools host processing tasks. Used in combination with the Host Processors setting, the CPU Usage Limit setting lets you control the way Pro Tools tasks are carried out by the system.

- Lower CPU Usage Limit settings limit the effect of Pro Tools processing on other CPU-intensive tasks, such as screen redraws, and are useful when you are experiencing slow system response, or when running other applications at the same time as Pro Tools.
- Higher CPU Usage Limit settings allocate more processing power to Pro Tools, and are useful for playing back large sessions or using more RTAS plug-ins.

The maximum available CPU Usage Limit depends on the number of processors in your computer and on the number of processors you specify for host processing. This value can range from 85% for single-processor computers (except for 003, 003 Rack+, 003 Rack, Digi 002, and Digi 002 Rack, which have a limit of 99%), and 99% for multiprocessor computers (which dedicate one entire processor to Pro Tools).

On multiprocessor computers, the maximum CPU Usage Limit is reduced when you use all your processors (as selected in the Host Processing pop-up menu). For example, on dual-processors, the limit is 90%. On four-processor computers, the limit is 95%.

 *Increasing the CPU Usage Limit may slow down screen responses on slower computers.*

To change the CPU Usage Limit:

- 1 Choose Setup > Playback Engine.
- 2 From the CPU Usage Limit pop-up menu, select the percentage of CPU processing you want to allocate to Pro Tools.
- 3 Click OK.

Host Engine (Error Suppression)


The Host Engine options in the Playback Engine determine error reporting during playback and recording. This is especially useful when working with instrument plug-ins.

On Avid HDX and Pro Tools|HD systems, there is a single Host Engine option. On host-based Pro Tools systems, there are two Host Engine options.

- Enable error suppression only if you are experiencing frequent errors that are interrupting your creative workflow. When error suppression is enabled, you can experience a degradation of audio quality. However, this may be acceptable in order to avoid interrupting playback and recording when working with instrument plug-ins.
- Disable error suppression when you need to ensure the highest possible audio quality, such as for a final mix.

To enable error suppression:

- 1 Choose Setup > Playback Engine.
- 2 Select Ignore Errors During Playback/Record.
- 3 If available, you can also select Minimize Additional I/O Latency.
- 4 Click OK.

 *If the Ignore Errors During Playback/Record option is enabled, you can experience badly distorted audio as a result of too many CPU intensive Native (AAX or RTAS) plug-ins active in the session (such as Eleven Free or various virtual instrument plug-ins). This is because Pro Tools is suppressing playback errors that would normally be seen if Error Suppression were disabled. If you encounter this problem, remove or make inactive any unnecessary Native plug-ins. You can also isolate and bus record any tracks that use virtual instruments, and then make those source tracks inactive to free up processing resources.*

Error Suppression Options

Ignore Errors During Playback/Record When enabled, Pro Tools continues to play and record even if the host processing requirements exceed the selected CPU Usage Limit. This can result in pops and clicks in the audio, but does not stop the transport.

Minimize Additional I/O Latency (Host-based Pro Tools Systems Only) When enabled, any additional latency due to suppressing errors during playback and record is minimized to 128 samples. Suppressing errors requires at least 128 samples of additional buffering on some systems. If this option is disabled, the buffer is half the H/W Buffer Size, or at least 128 samples (whichever is greater). If you are using a slower computer, you may want to disable this option to avoid adverse performance.

This option is only available if the Ignore Errors During Playback/Record option is enabled and the Pro Tools system you are using requires additional buffering for error suppression, as follows:

- Windows:
 - Mbox Pro and Mbox 2 Pro
- Mac:
 - 003 family devices
 - Eleven Rack
 - Mbox family devices
 - Digi 002 and 002 Rack
 - Pro Tools Aggregate I/O

Number of Voices (Avid HDX and Pro Tools|HD Systems Only)

On Avid HDX and Pro Tools|HD systems, the Number of Voices setting in the Playback Engine lets you control the number of available voices and how those voices are allocated to DSPs in your system. For example, the default number of voices on a Pro Tools|HD 1 system is 48 voices, using one DSP (at sample rates of 44.1 kHz or 48 kHz).

Changing the number of voices affects DSP usage, the total number of voiceable tracks, and overall system performance.


Depending on the session sample rate and the number of Avid HDX or Pro Tools|HD cards in your system, there are different choices for voice count. For voice limits on different Avid HDX and Pro Tools|HD systems, see “Playback, Recording, and Voice Limits with Pro Tools HD” on page 49.


To change the Number of Voices and DSP to allocate for voicing:

- 1 Choose Setup > Playback Engine.
- 2 Select the number of voices and DSPs to allocate for voicing by selecting a value from the Number of Voices pop-up menu as follows:
 - Select minimum voice numbers if you are using high-bandwidth PCI or PCIe cards (such as video capture cards) along with your Avid HDX or Pro Tools|HD cards. These settings place the lightest processing load on each allocated DSP chip, but generally require more DSP chips be dedicated to voicing and mixing (leaving fewer available for plug-ins).
 - Select medium voice numbers when your Pro Tools|HD cards are in an expansion chassis, or when you are using other PCI or PCIe cards along with Avid HDX or Pro Tools|HD cards. These settings generally provide an optimum balance between number of chips needed for voicing, and the processing load placed on each.
 - Select higher voice numbers when your Avid HDX or Pro Tools|HD cards are the only PCI or PCIe cards in your computer, or when you are using an expansion chassis to run higher track counts (such as 64 tracks at 96 kHz) and you want more voices per DSP (such as 16 voices per DSP at 96 kHz). These settings use fewer DSP chips for mixing (leaving more available for plug-ins) but place the highest processing load on each.
- 3 Click OK.

**Sample Rate (Playback Engine)
(Avid HDX and Pro Tools|HD Systems Only)**

The Sample Rate setting in the Playback Engine determines the default sample rate when you create a new session. This setting is available only when there is no session open. Otherwise, the current session sample rate is displayed, but cannot be changed.

 *The Sample Rate setting can affect the number of available voices.*

 *You can change the sample rate when creating a new Pro Tools session by selecting a different sample rate in the New Session dialog. (See “Creating a New Session” on page 168.) You can also change the default Sample Rate in the Hardware Setup, as long as no session is open.*

To make a copy of a session with a new sample rate, use Save Copy In.


To change the default Sample Rate in the Playback Engine:

- 1 With no session open, choose Setup > Playback Engine.
- 2 Select the sample rate from the Sample Rate pop-up menu.
- 3 Click OK.

Delay Compensation Engine

Depending on your Pro Tools system, the Delay Compensation Engine setting in the Playback Engine determines how much DSP or host-based processing resources are dedicated to Pro Tools Delay Compensation, which manages DSP and host-based delays in the Pro Tools mixer.

Within a session, you can enable or disable Delay Compensation (Options > Delay Compensation). When Delay Compensation is disabled, it uses no DSP or host-processing resources.

 *For more information, see “Delay Compensation” on page 971.*

To configure the Delay Compensation Engine:

- 1 Choose Setup > Playback Engine.
- 2 From the Delay Compensation Engine pop-up menu, select None, Short, Long, or Maximum.
- 3 Click OK.

Delay Compensation Settings


Depending on your Pro Tools system, there are up to four settings available in the Playback Engine to dedicate processing resources for Delay Compensation:


None Allocates no resources for Delay Compensation.

Short Provides 1,023 samples at 44.1/48 kHz, 2,047 samples at 88.2/96 kHz, or 4,094 samples at 176.4/192 kHz of Delay Compensation for each channel. This is the most efficient setting. For sessions with only a few plug-ins that do not induce too much DSP and host-based delay, this setting should be sufficient.

Long Allocates 4,095 samples at 44.1/48 kHz, 8,191 samples at 88.2/96 kHz, or 16,382 samples at 176.4/192 kHz of Delay Compensation for each mixer channel. For sessions with a lot of plug-ins resulting in a large amount of DSP and host-based delay, select this setting.

Maximum Allocates 16,383 samples at 44.1/48 kHz, 32,767 samples at 88.2/96 kHz, or 65,534 samples at 176.4/192 kHz of Delay Compensation for each mixer channel. For sessions with plug-ins on mixer channels that result in more than 4,000 samples of delay at 48 kHz, select this setting.

 *The Maximum option is unavailable with Pro Tools/HD systems.*

 *Pro Tools HD with Avid HDX hardware acceleration always uses the full DSP resources of the Maximum setting when Delay Compensation is enabled. The None, Short, and Long settings are included only for compatibility with legacy sessions.*

System Memory Allocation

(Pro Tools|HD Systems Only)

When you start your computer, Pro Tools automatically reserves a portion of system memory for the Playback Buffer. This reserved memory is unavailable to other applications, even if Pro Tools is not running.

You can set Pro Tools to reserve only the minimum amount of required memory, so that more system memory is available to other applications.

To minimize system memory allocation:

- 1 Choose Setup > Playback Engine.
- 2 Select the Minimize System Memory Allocation option.
- 3 Click OK.
- 4 Do one of the following:
 - On Mac systems, if prompted, enter your password, then restart your computer.
 - On Windows systems, restart your computer.

Cache Size

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

The Cache Size setting in the Playback Engine determines the amount of memory DAE allocates to pre-buffer audio for playback and recording. In most cases, the default setting of Normal is the optimum Cache Size for most sessions.

Pro Tools HD and Pro Tools with Complete Production Toolkit can also load audio files used in Pro Tools sessions into RAM for cached playback. Pro Tools prioritizes files closest to the current playhead location. This way, when you start playback, those files are already cached for playback. This is especially useful when working with shared media storage (such as with Avid Unity MediaNetwork and ISIS shared storage systems).

To determine the maximum amount of RAM available for the Disk Cache, Pro Tools polls the computer for the amount of RAM installed and subtracts 3 GB with Mac systems or 4 GB with Windows systems.

For example, if your computer has 12 GB of RAM installed, the total amount of RAM available for the Disk Cache will be 9 GB (Mac) or 8 GB (Windows).

Note that Windows systems reserve more RAM for the system than Mac systems.



You can use the Cache Meters in the System Usage window to determine whether to assign more or less RAM to the Disk Cache for the current session. See “Cache Meters” on page 85.

To set the amount of RAM for use by the Disk Cache:

- 1 Choose Setup > Playback Engine.
- 2 From the Disk Cache selector, select the amount of RAM you want to allocate for Disk Cache.
- 3 Click OK.

Plug-In Streaming Buffer Size (Structure Plug-In Only)

This setting appears in the Playback Engine only if the Structure sampler instrument plug-in is installed on your system (this applies to Structure LE and Structure Free as well). The Plug-In Streaming Buffer Size determines the amount of memory DAE allocates for streaming playback from disk with the Structure plug-in. This setting only affects playback if disk streaming is activated in Structure's plug-in controls (see the *AIR Virtual Instruments Guide* for more information).

The optimum Plug-In Streaming Buffer Size for most sessions is 250 ms; Level 2 (Default).

- Plug-In Streaming Buffer Size settings lower than 250 ms; Level 2 (Default) reduce the amount of system memory used for sample playback and free up memory for other system tasks. However, reliability of sample playback may decrease.
- Plug-In Streaming Buffer Size settings higher than 250 ms; Level 2 (Default) improve the reliability of sample playback, but they also decrease the amount of memory available for other system tasks, such as Native plug-in processing.



Using a larger Plug-In Streaming Buffer Size leaves less system memory for other tasks. The default setting of 250 ms (Level 2) is recommended unless you are experiencing problems with the reliability of streaming playback from disk.

To change the Plug-In Streaming Buffer Size:

- 1 Choose Setup > Playback Engine.
- 2 From the Plug-In Streaming Buffer Size pop-up menu, select a buffer size.
- 3 Click OK.

Optimizing the Plug-In Streaming Buffer Size (Structure Plug-In Only)

This option appears in the Playback Engine only if the Structure plug-in is installed on your system. This option is useful when you are playing samples from the same drive that contains audio for the current session. When this option is selected, Pro Tools automatically optimizes the size of the Plug-In Streaming Buffer to facilitate disk access from both Pro Tools and Structure. The Plug-In Streaming Buffer Size pop-up menu is unavailable when this option is selected.

To set Pro Tools to automatically optimize the Plug-In Streaming Buffer Size:

- 1 Choose Setup > Playback Engine.
- 2 Select the Optimize for Streaming Content on Audio Drives option.
- 3 Click OK.

Configuring MIDI Setup

If you plan to use any external MIDI devices with Pro Tools (such as controllers, keyboards, synthesizers, drum machines, samplers, sequencers, or sound modules), you may want to configure your MIDI setup using Audio MIDI Setup (Mac) or MIDI Studio Setup (Windows).



For information on configuring MIDI, see Chapter 10, "Configuring MIDI."

Configuring Pro Tools Hardware Settings

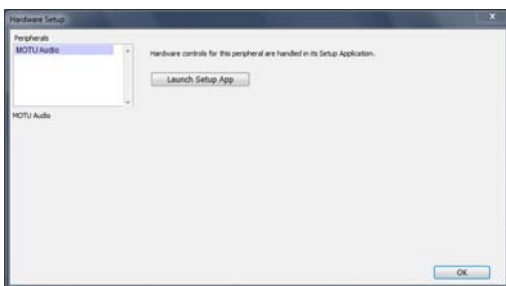
Pro Tools lets you configure the signal routing, digital I/O format, default sample rate, clock source, and other hardware-based settings depending on your system configuration. These system settings are available in the Hardware Setup (Setup > Hardware).



Hardware Setup for HD OMNI, Main page



Hardware Setup for Mbox 2



Hardware Setup for an ASIO device

Selecting an Audio Interface to Configure

The Peripherals list in the Hardware Setup lets you select any audio interface connected to your Pro Tools system associated with the selected Current Engine setting in the Playback Engine dialog.

To change the Current Engine setting to use a specific audio interface or DAE (such as HD TDM, 003, a third-party Core Audio or ASIO interface, or Pro Tools Aggregate I/O), see “Current Engine” on page 65).

For Avid HD audio interfaces (such as HD OMNI or HD I/O) you can configure the signal routing, digital I/O format, default sample rate, clock source, and other hardware-based settings for each HD peripheral connected to your system.

For Pro Tools audio interfaces (such as 003 or Mbox 2) you can configure the signal routing, digital I/O format, default sample rate, clock source, and other hardware-based settings depending on your system configuration.

For third-generation Mbox family audio interfaces, and third-party Core Audio (Mac) and ASIO (Windows) compatible audio interfaces, use the Launch Setup App button to launch the control panel for configuring your specific audio interface.

Launch Setup App

(Pro Tools with Mbox Family or Third-Party Audio Interfaces Only)

Using the setup application (control panel) for your audio interface, you can change settings in the following areas depending on your audio interface:

- Mixer Settings
- Output Settings
- Hardware Settings (including sample rate, hardware buffer size, and sync source).

💡 *You can set the sample rate when creating a new Pro Tools session by selecting a different sample rate in the New Session dialog.*

To change control panel settings:

- 1 In the Hardware Setup dialog, click the Launch Setup App button.
- 2 To change settings in the Control Panel, see the documentation that came with your audio interface.
- 3 When finished, close the Control Panel.

Configuring Pro Tools Aggregate I/O (Mac Only)

On Mac systems using Core Audio, you can select Pro Tools Aggregate I/O as the Current Engine to use the built-in audio inputs and outputs on your Mac computer. You can configure the Pro Tools Aggregate I/O setting in the Mac Audio Setup, which can be accessed from the Pro Tools Hardware Setup.

To configure Pro Tools Aggregate I/O settings:

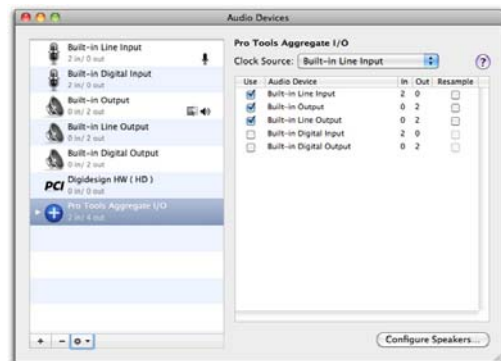
- 1 Choose Setup > Hardware.
- 2 In the Peripherals list, select Pro Tools Aggregate I/O, or whichever Built-in input or output option is selected as the Current Engine in the Playback Engine.



Hardware Setup for Pro Tools Aggregate I/O (Mac only)

- 3 Click the Launch Setup App button.
- 4 In the Audio Devices window of the Mac Audio Setup, configure the Pro Tools Aggregate I/O settings.

⚠ *The Pro Tools Aggregate I/O device is intended for use only with the built-in audio on your Mac computer. For best performance, use the default settings.*



Pro Tools Aggregate I/O in the Audio Devices window


Configuring Default Sample Rate Setting in Hardware Setup

The Sample Rate setting in the Hardware Setup dialog determines the default sample rate when you create a new session. This setting is available only when there is no session open. Otherwise, the current session sample rate is displayed, but cannot be changed.

With Avid HDX, Pro Tools|HD, and HD Native hardware, you can change the default Sample Rate in the Hardware Setup, or in the Playback Engine.

 *With Avid HDX, Pro Tools|HD, and HD Native hardware, the Sample Rate setting can affect the number of available voices.*

On Pro Tools, you can only change the default sample rate in the Hardware Setup or using the control panel for third-party audio interfaces.


 *You can change the sample rate when creating a new Pro Tools session by selecting a different sample rate in the New Session dialog.*

To change the default Sample Rate in the Hardware Setup:

- 1 Choose Setup > Hardware Setup.
- 2 Select the sample rate from the Sample Rate pop-up menu.
- 3 Click OK.

Configuring Clock Source

The Pro Tools Hardware Setup lets you select the Clock Source for the system.

 *Changes made to Clock Source in the Session Setup window will be reflected in the Hardware Setup window.*


Internal If you are recording an analog signal directly into Pro Tools, you will usually use the Pro Tools Internal clock source.

External If you are transferring material into Pro Tools from an external digital device, or if you utilize a common house clock signal, you will synchronize Pro Tools to that digital device or common signal.

Depending on your audio interface, external options can include AES/EBU [Encl], S/PDIF, Optical [Encl], AES/EBU 1–8, TDIF, ADAT, and Word Clock. For details, see the guide for your audio interface.

To select the Clock Source:

- 1 Choose Setup > Hardware.
- 2 Choose the clock source from the Clock Source pop-up menu.
- 3 Click OK.

 *Your digital input device must be connected and powered on for Pro Tools to synchronize to it. If your input device is not powered on, leave the Clock Source set to Internal.*

Configuring Digital Format and Hardware Routing

The Hardware Setup includes additional settings for configuring the digital format and hardware routing for your system's audio interfaces.

For an outline of the configuration of an Avid HDX, Pro Tools|HD, or HD Native system with one or more Avid HD interfaces, see “Configuring Avid HDX, Pro Tools|HD, and HD Native Hardware Settings” on page 77.



To configure specific hardware settings for other Pro Tools or third-party audio interfaces, see the documentation that came with your audio interface.

Selecting Footswitch Control (003 and 002 Only)

The footswitch connector on your 003 or 002 family interface lets you use a footswitch pedal to control either playback start/stop or recording punch in/out. Both QuickPunch audio punch-in and punch-out and MIDI punch-in and punch-out recording are supported.

Record Punch In/Out Select this option to use a footswitch connected to your 003 or 002 family interface to punch in and punch out during recording.

Playback Start/Stop Select this option to use a footswitch connected to your 003 or 002 family interface to start and stop playback.

Configuring Avid HDX, Pro Tools|HD, and HD Native Hardware Settings

On Avid HDX, Pro Tools|HD, and HD Native systems, you configure Hardware settings for each audio interface connected to your system (see Chapter 5, “Pro Tools Systems.”)

For example, Avid HDX, Pro Tools|HD, and HD Native systems can have HD I/O, HD OMNI, HD MADI, 192 I/O, 192 Digital I/O, 96 I/O, or 96i I/O audio interfaces connected to HDX, HD Native, Accel Core or HD Core, and HD Accel or HD Process cards in the system. The HD I/O, HD OMNI, 192 I/O, 192 Digital I/O, and 96 I/O can also have additional interfaces attached using the Expansion port on each interface.

Identifying Audio Interfaces

If you have multiple audio interfaces of the same type connected to your system, before you make audio connections to them, you should confirm the identity of each interface. This ensures that you choose the appropriate interface in the Peripherals list when you define its inputs and outputs in the Hardware Setup.

To identify audio interfaces in your system:

- 1 Choose Setup > Hardware.
- 2 From the Peripherals list, select an audio interface connected to your system.



Use the Up and Down Arrow keys to scroll through the Peripherals list in the Hardware Setup.

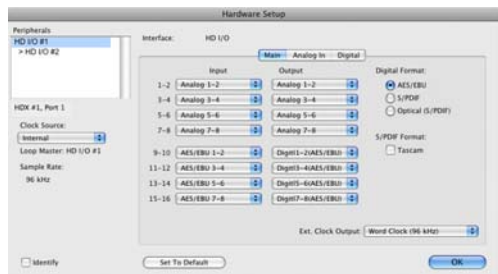
- 3 Make sure the Main page is shown.

- 4 Select the Identify option, located in the lower left corner of the Hardware Setup. This illuminates all the LEDs on the front panel of the selected audio interface.
- 5 Make a note of which interface in your studio setup corresponds to the identified interface.
- 6 Repeat the above steps for each additional audio interface in your setup.

Configuring Avid HD Audio Interfaces

HD OMNI supports up to eight channels of simultaneous I/O and multiple I/O formats (such as analog, AES/EBU, ADAT Optical, and S/PDIF). HD I/O, 192 I/O, 192 Digital I/O, 96 I/O, and 96i I/O audio interfaces support sixteen channels of simultaneous I/O and multiple I/O formats (such as analog, AES/EBU, ADAT Optical, S/PDIF, and TDIF). HD MADI supports up to 64 channels of MADI I/O.


The Main page of the Hardware Setup is where you define which physical inputs and outputs on your audio interface are routed to available inputs and outputs in Pro Tools. You can think of this window as a patchbay that allows you to route any of the inputs or outputs on your audio interfaces to channel assignments in the Pro Tools mixer.



Hardware Setup for HD I/O, Main page

Additional pages are available to configure other controls for each audio interface (such as setting operating levels).

To configure Avid HD audio interfaces:

- 1 Choose Setup > Hardware.
 - 2 From the Peripherals list, select the audio interface connected to the first card in your system. This will be the interface at the top of the list.
 - 3 Click the Main tab.
-  Press Command+Left or Right Arrow keys (Mac) or Control+Left or Right Arrow keys (Windows) to move through the different pages of the Hardware Setup.
- 4 From the Clock Source pop-up menu, select the appropriate clock source for the interface.

In many cases, you will use Internal. The other choices are for resolving Pro Tools to external clock sources. Depending on your audio interface, Clock Source options can include: AES/EBU [Encl], S/PDIF, Optical [Encl], AES/EBU 1–8, TDIF, ADAT, and Word Clock (optional Word Clock rates are available when operating at higher sample rates).

- 5 If you want to send clock output to other devices attached to the audio interface, select the appropriate output from the Ext. Clock Output pop-up menu.
- 6 Select which digital I/O port on your audio interface enclosure is active by selecting the corresponding option under Digital Format. Depending on the type of interfaces in your system, choices include AES/EBU, S/PDIF, and Optical (S/PDIF). Selecting Optical (S/PDIF) resets the Optical I/O port (which is, by default, eight channels of ADAT Optical I/O) to two channels of S/PDIF Optical I/O.

- 7 For S/PDIF compatibility with Tascam DA-30 DAT recorders, select the Tascam option under S/PDIF Format.
- 8 From the Input and Output channel pop-up menus, select the physical ports (such as Analog 1–2 or Optical 1–2), that will be routed to the corresponding Pro Tools input and output channels (such as Ch 1–2, Ch 3–4), listed on the left side of the Main page.

Inputs and outputs of similar format are differentiated in the input and output channel pop-up menus. For example, the AES/EBU inputs and outputs in the HD I/O enclosure are listed as AES/EBU [Enc], while the AES/EBU inputs and outputs on the factory-installed Digital I/O card are listed (in pairs) as AES/EBU 1–2, AES/EBU 3–4, AES/EBU 5–6, and AES/EBU 7–8. For HD I/Os equipped with a second Digital I/O Card, the additional AES/EBU I/O ports on the optional card are listed as AES/EBU 9–10, AES/EBU 11–12, AES/EBU 13–14, and AES/EBU 15–16.

- 9 Configure any specific controls for your audio interface:
 - “Configuring HD OMNI Controls” on page 79.
 - “Configuring HD I/O Controls” on page 80.
 - “Configuring HD MADI Controls” on page 81.
 - “Configuring 192 I/O and 192 Digital I/O Controls” on page 82.
 - “Configuring 96 I/O Controls” on page 83.
 - “Configuring 96i I/O Controls” on page 83.

- 10 For additional audio interfaces, select it in the Peripherals list, and repeat the above steps.



See your peripheral’s guide for additional configuration details and restrictions. For example, the Optical 1–8 channels (on the 192 I/O enclosure) will not be available at session sample rates of 88.2 kHz or higher, while the ports on the 192 I/O Digital I/O card will still be available.

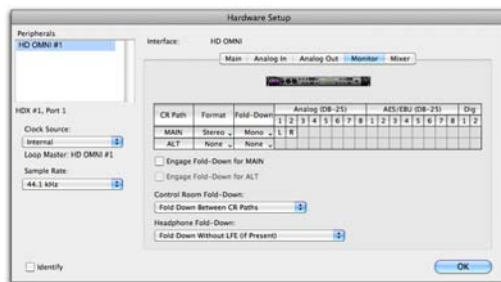
Configuring HD OMNI Controls



For detailed information about configuring HD OMNI, see the HD OMNI Guide.

To configure HD OMNI in Pro Tools:

- 1 Choose Setup > Hardware.
- 2 From the Peripherals list, select the HD OMNI audio interface.
- 3 Click the Monitor tab and configure the options. When working with HD OMNI, you should always configure the Monitor page first.



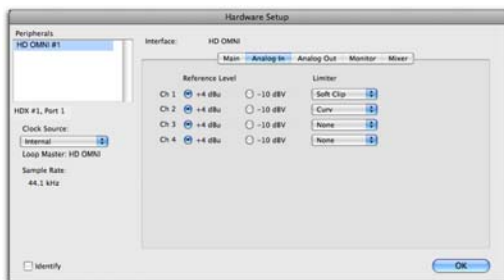
HD OMNI Hardware Setup, Monitor page

- Click the Main tab and configure the options.



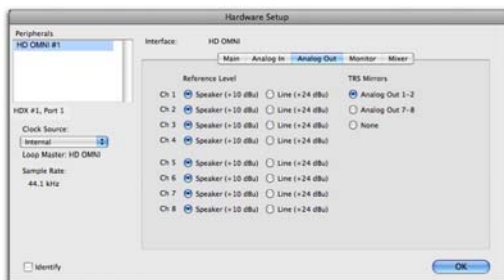
HD OMNI Hardware Setup, Main page

- Click the Analog In tab and configure the options.



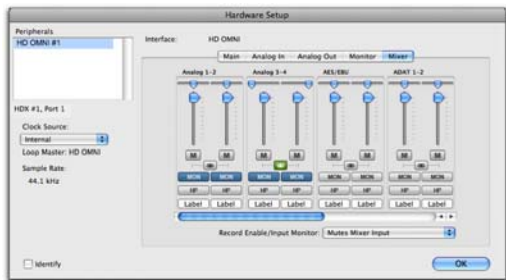
HD OMNI Hardware Setup, Analog In page

- Click the Analog Out tab and configure the options.



HD OMNI Hardware Setup, Analog Out page

- Click the Mixer tab and configure the options.



HD OMNI Hardware Setup, Mixer page

- When you are finished, click OK.

Configuring HD I/O Controls

For detailed information about configuring HD I/O, see the HD I/O Guide.

To configure controls for HD I/O:

- Choose Setup > Hardware.
- From the Peripherals list, select the HD I/O audio interface.
- Click the Main tab and configure the options.



HD I/O Hardware Setup, Main page

- If you have at least one HD I/O AD card, click the Analog In tab and configure the options. If you have two HD I/O AD cards, this tab is labeled Analog In 1–8.



HD I/O Hardware Setup, Analog In page

- 5 If you have two HD I/O AD cards, click the Analog In 9–16 tab and configure the options.



HD I/O Hardware Setup, Analog In 9–16 page


- 6 If you have at least one HD I/O Digital card, click the Digital tab and configure the options.



HD I/O Hardware Setup, Digital page

- 7 If you have two HD I/O Digital cards, click the second Digital tab and configure the options.
- 8 When you are finished, click OK.

Configuring HD MADI Controls


 For detailed information about configuring HD MADI, see the HD MADI Guide.

To configure controls for HD MADI:

- 1 Choose Setup > Hardware.
- 2 From the Peripherals list, select either HD MADI Port 1 or HD MADI Port 2 and configure the options.



HD MADI Hardware Setup

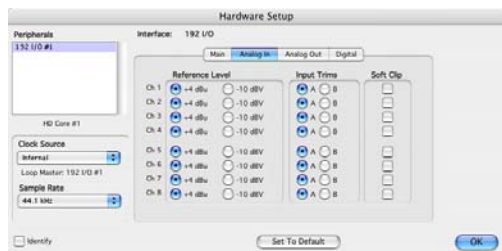
 The settings for HD MADI Port 1 and HD MADI Port 2 are linked. Any changes are global regardless of which is selected in the Peripherals list.

- 3 When you are finished, click OK.

Configuring 192 I/O and 192 Digital I/O Controls

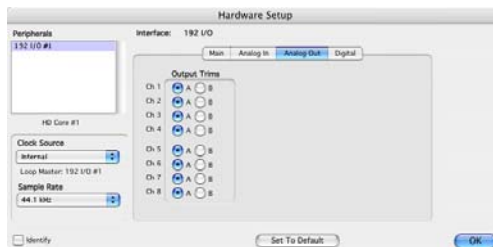
To configure controls for a 192 I/O:

- 1 With the 192 I/O selected in the Peripherals list, click the Analog In tab for the following options:
 - You can set your operating level on a channel-by-channel basis by selecting Reference Level +4 dBu or -10 dBV. These settings correspond to two different input connectors on the back of the 192 I/O. See the *192 I/O Guide* for more information.
 - Each of the analog channels in the 192 I/O has two Input Trims, labeled A and B, for precisely calibrating and switching levels. You can select Input Trim A or B on a channel-by-channel basis. See the *192 I/O Guide* for more information.
 - You can select Soft Clip on a channel-by-channel basis. The Soft Clip limiter attenuates the incoming analog signal, providing extra protection from temporary clipping transients that can cause digital distortion when they exceed the maximum input of the unit. With Soft Clip enabled, 192 I/O supports an additional 4 dB of headroom by rounding off the top 4 dB to the clip point. This is useful for eliminating stray transients.



Hardware Setup for 192 I/O, Analog In page

- 2 Click the Analog Out tab. Each of the analog channels in the 192 I/O has two Output Trims, labeled A and B, respectively. You can select Output Trim A or B on a channel-by-channel basis.



Hardware Setup for 192 I/O, Analog Out page

To configure controls for a 192 Digital I/O or 192 I/O with an optional Digital I/O card:

- On the 192 Digital I/O or a 192 I/O with an optional Digital I/O card, click the Digital tab to set the Input Format (AES/EBU, TDIF, or ADAT Optical) and enable real-time sample rate conversion (in channel pairs, with the SR Conversion option).



At session sample rates above 48 kHz, sample rate conversion for the TDIF and Optical (ADAT) inputs on the Digital I/O card is automatically enabled on all eight inputs of the selected format.

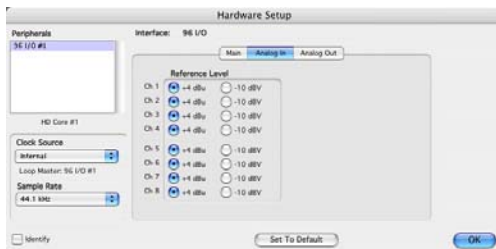


Hardware Setup for 192 I/O, Digital page

Configuring 96 I/O Controls

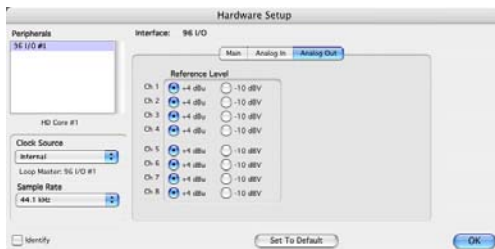
To configure controls for a 96 I/O:

- 1 With the 96 I/O selected in the Peripherals list, configure your I/O front panel meters for input or output metering from the Meters pop-up.
- 2 Click the Analog In tab for the following option:
 - You can set your operating level on a channel-by-channel basis by selecting Reference Level +4 dBu or –10 dBV. See the *96 I/O Guide* for more information on setting operating levels.



Hardware Setup for 96 I/O, Analog In page

- 3 Click the Analog Out tab for the following option:
 - You can set your output level on a channel-by-channel basis by selecting Reference Level +4 dBu or –10 dBV. See the *96 I/O Guide* for more information on setting operating levels.

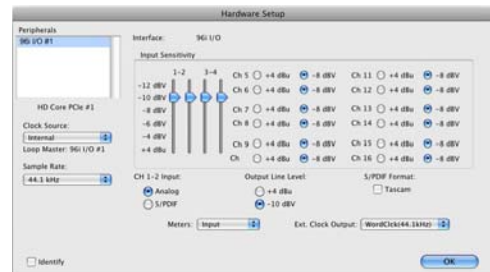


Hardware Setup for 96 I/O, Analog Out page

Configuring 96i I/O Controls

To configure controls for a 96i I/O:

- 1 With the 96i I/O selected in the Peripherals list, configure your I/O front panel meters for input or output metering from the Meters pop-up.
- 2 Set input sensitivity by doing the following:
 - For Inputs 1–4, set the input trim slider to match the output level of the connected instrument. Choices range from –12 dBV to +4 dBu. If you do not know the output level of the device, use the default input trim level, then fine tune the input level sensitivity.
 - For each input 5–16 being used, select –8 dBV or +4 dBu as appropriate to best match the output level of the connected instrument.
- 3 Set Output levels (select –10 dBV or +4 dBu).
- 4 Click Done.



Hardware Setup for 96i I/O

You can select analog or digital input as sources for 96i I/O channels 1–2. Only channels 1–2 can access the S/PDIF inputs.

To select analog or digital input for channels 1-2:

- 1 Choose Setup > Hardware, and select 96i I/O in the Peripherals list to display the 96i I/O window.
- 2 Click to set Ch 1–2 Input to Analog or S/PDIF, as appropriate.



The 96i I/O only supports analog and digital switching for channels 1–2, and only from within the Hardware Setup and I/O Setup. The 96i I/O does not support path remapping within I/O Setup.

Configuring I/O Setup

The I/O Setup provides a graphical representation of the signal routing for each connected audio interface, with controls to route physical ports on the audio interface to Pro Tools inputs and outputs. These controls mirror the routing controls found in the Hardware Setup—changes made to physical routing in one is always reflected in the other.

The I/O Setup lets you label and map Pro Tools input, output, insert, and bus signal paths. The I/O Setup also provides important audition, meter, and surround settings. For more information, see Chapter 7, “I/O Setup.”

Routing a Pro Tools Output Pair to Multiple Destinations

Pro Tools channel pairs can be routed to multiple physical outputs on an audio interface through the Hardware Setup.

For example, if you assign Channels 1–2 to both outputs Analog 1–2 and Analog 3–4, when you send a signal to Pro Tools Channels 1–2, that signal will be routed simultaneously to both pairs of output ports on your audio interface.

This lets you send the same signal (such as a stereo pair, a stem mix, or a multichannel mix) to multiple destinations (such as multiple mastering devices).

To route a Pro Tools output channel pair to multiple audio interface output ports:

- 1 Choose Setup > Hardware.
- 2 From the Peripherals list, select an interface.
- 3 Click the Main tab.
- 4 Select an output port pair from an Output pop-up menu.
- 5 Control-click (Mac) or Start-click (Windows) the same pop-up menu a second time to choose another available Output Port pair.



Only currently unassigned Output Port pairs are available.

The output name updates with a plus sign (“+”) before it to indicate that multiple output ports are selected. In the pop-up menu, each physical port pair assigned to that Pro Tools output pair is indicated by a check mark.

- 6 Repeat the above steps to select additional output destinations. The only limit to output choices is the number of outputs available in your system.

Pro Tools output pairs can also be routed to multiple audio interface outputs in the I/O Setup. For more information, see “Configuring Hardware in I/O Setup” on page 102.

System Usage

Meters in the System Usage window indicate how much of your system's processing power is being used when processing audio, and when writing and playing back automation.

Activity Meters

All versions of Pro Tools provide three common system Activity meters. Avid HDX, Pro Tools|HD, and HD Native systems also provide a meter for monitoring PCI activity.



System Usage window (Pro Tools|HD system shown)

PCI (Avid HDX, Pro Tools|HD, and HD Native Systems Only) Displays the amount of PCI bus activity.

CPU (Native) Displays the amount of CPU processing activity for host-based plug-in processing.

CPU (Clip) Displays the amount of processing activity for Real-Time Elastic Audio processing and clip gain.

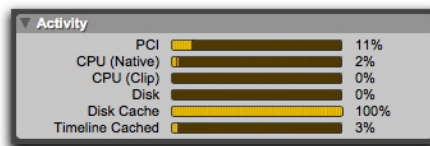
Disk Displays the amount of hard disk processing activity.

As these meters approach their limits, host processing and recording or playback of automation data can be affected. If CPU or PCI Activity are high, a system error may occur. If Disk Activity is high, Pro Tools may miss playback of some automation data during particularly dense periods of activity, such as while using the Bounce to Disk command.

Cache Meters

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

Pro Tools HD provides two meters in the System Usage window for monitoring the Disk Cache: Disk Cache and Timeline Cached. These meters are only present if a fixed Cache Size is selected in the Playback Engine dialog.



System Usage window showing Disk Cache and Timeline Cached meters

Disk Cache Displays the percentage of how much of the allocated disk cache is filled. For example, if the Cache Size in the Playback Engine is set to 1 GB and a session uses 250 MB of audio files, the Disk Cache meter reads 25%. If all of the audio in the session is cached (including files in the Clip List that are not on the timeline), the Disk Cache meter appears green.

Timeline Cached Displays the amount of audio in the session Timeline cached in RAM.

If the selected Cache Size in the Playback Engine is the same or greater than the amount of audio on the Timeline, the Timeline Cached meter reads 100% and it appears green (indicating that all of the audio on the Timeline is cached in RAM). This is useful for letting you know how much audio can still be added to the Timeline and be cached in RAM.

If the total amount of audio in the Timeline is more than the selected Cache Size in the Playback Engine, the Timeline Cached meter shows the percentage of audio on the Timeline that is cached in

RAM. For example, if the selected Cache Size in the Playback Engine is 256 MB and the amount of audio on the Timeline is 1 GB, the Timeline Cached meter reads 25%.

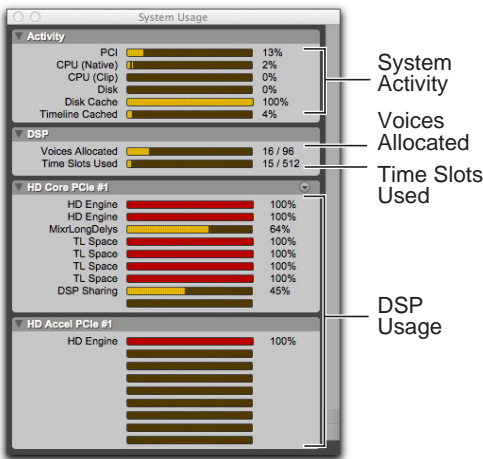
DSP Usage Meters (Avid HDX and Pro Tools|HD Systems Only)

Avid HDX and Pro Tools|HD systems provide additional meters below the Activity meter (see page 85):

Voices Allocated Displays the total number of TDM voices that can be allocated and the number of voices currently allocated. This includes all voices whether they are allocated explicitly or dynamically, as well as any voices used for routing host-based processing.

Time Slots Used Displays the total number of TDM Time Slots available and the number of TDM Time Slots currently used.

DSP Usage (Avid HDX and Pro Tools|HD) Displays (in percent) how much of each DSP chip on each Avid HDX or Pro Tools|HD card is currently being used for mixer configurations and DSP-based (AAX and TDM) plug-ins.



System Usage window (Pro Tools HD 2 Accel shown)

Managing System Resources

To monitor the usage of resources during a Pro Tools session:

- Choose Window > System Usage.

To reduce processing load, do one of the following:

- Reduce the density of automation in places where it shows the most activity. For details, see “Thinning Automation” on page 1045.
- Turn off meters in Sends view, if enabled (by deselecting Show Meters in Sends View in the Display Preferences page). For details, see “Individual Send Views and Meters” on page 955.

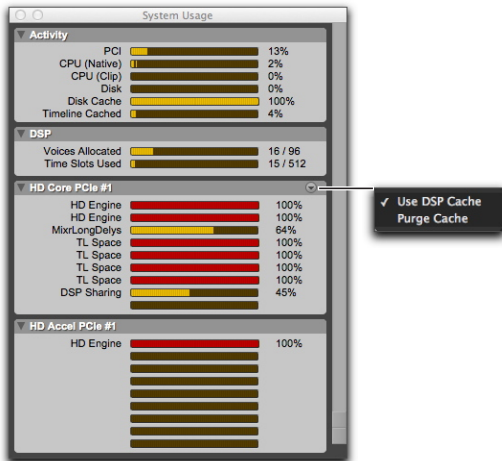
DSP Caching (Pro Tools|HD Systems Only)

Pro Tools|HD systems maintain DSP caching (Plug-In and Mixer caching for allocated DSP) when closing and opening sessions. While this caching has no effect on the time it takes to open the first session after you launch Pro Tools, it does result in being able to open and close all subsequent Pro Tools sessions much more quickly, especially when using the Revert To Saved command or when opening similarly-configured sessions.

However, when using DSP caching, the System Usage window may not always accurately show the DSP resources your session is currently using. For an accurate display of current DSP usage, you can either disable DSP caching or purge the DSP cache.

To enable (or disable) DSP Caching:

- 1 Open the System Usage window (Windows > System Usage).
- 2 Click the DSP Cache pop-up menu and select (or deselect) Use DSP Cache.



System Usage window, DSP Cache pop-up menu

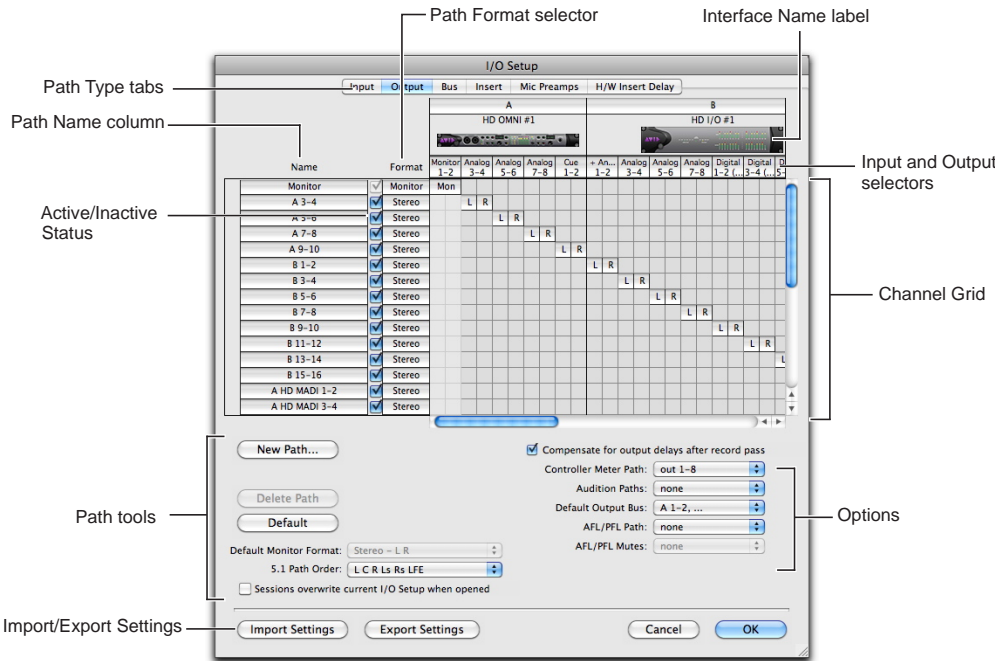
To purge the DSP cache:

- 1 Open the System Usage window (Windows > System Usage).
- 2 Click the DSP Cache pop-up menu and select (or deselect) Purge Cache. This refreshes the System Usage display.

Chapter 7: I/O Setup

The I/O Setup provides tools to label, format, and assign Pro Tools input, output, insert, and bus *audio signal paths* both for individual sessions as well as for your specific Pro Tools system.

I/O Setup also provides controls for PRE (Mic Preamp) signal paths, and Delay Compensation settings for hardware inserts.



I/O Setup on a Pro Tools|HD system with HD OMNI and HD I/O

The I/O Setup displays a graphical representation (*cross-point matrix*) of the signal routing for physical input and output paths for each connected audio interface. Like a virtual patchbay, I/O Setup controls let you route physical inputs and outputs on the audio interface to Pro Tools input and output channels. For Avid HDX, Pro Tools|HD, and HD Native systems, some of these controls mirror the routing controls found in the Hardware Setup—changes made to physical routing in one is always reflected in the other.

The I/O Setup also includes controls for creating internal mix busses and for creating and mapping output busses.

Opening the I/O Setup

The I/O Setup can be opened from the application window (with a session closed), or from within a session (when a session is open).

To open the I/O Setup:

- 1 Make sure your audio interfaces are enabled and configured properly in the Hardware Setup. See “Configuring Pro Tools Hardware Settings” on page 74.
- 2 Choose Setup > I/O.

Closing the I/O Setup

To close the I/O Setup and save changes:

- Click OK.

Pro Tools checks several settings for routing validity (to prevent feedback loops). If there are any overlapping or invalid settings, you will be required to correct them (see “Valid Paths and Requirements” on page 114).

To close the I/O Setup without saving changes:

- Click Cancel.

Resizing the I/O Setup

To resize the I/O Setup dialog, do one of the following:

- On Mac, drag the lower-right corner of the window.
- In Windows, drag any corner of the window.

Navigating in the I/O Setup

To scroll left or right in the I/O Setup:

- Press Option+Page Up/Down (Mac) or Alt+Page Up/Down (Windows).

Pro Tools Signal Paths

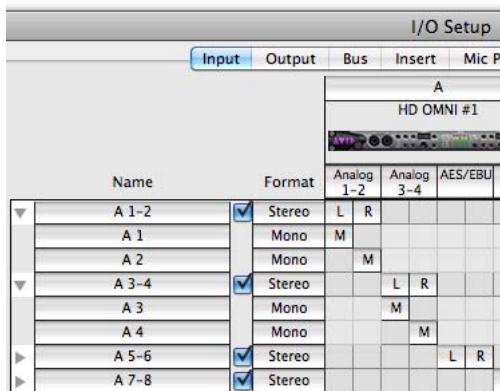
A signal path is a logical grouping of multiple inputs, outputs, or busses that has a single name and (channel) format. The I/O Setup lets you create, define and name paths according to the configuration of your studio and the needs of each project.

Main Paths and Sub-Paths

Paths in Pro Tools tracks and I/O Setup include *main paths* and *sub-paths*.

Main Paths *Main paths* are logical groupings of inputs, inserts, busses, or outputs. For example, a master stereo output path will include both its left and right channels.

Sub-Paths A *sub-path* represents a signal path within a main path. For example, a default stereo output bus path consists of two mono sub-paths, left and right. Mono tracks and sends can be routed to either mono sub-path of the stereo output bus path.



Main and sub-paths in I/O Setup



It is especially useful to define and name sub-paths for complex mixing setups, such as a 5.1 Surround mix.

Paths in Sessions

In sessions, signals are routed to and from tracks, sends, and inserts using track Input, Output, Insert, and Send selectors.

When you click a track Input, Output, Insert or Send selector, the paths created and defined in the IO Setup appear in the list of available paths (see “Assigning Audio Inputs and Outputs to Tracks” on page 240).

Path Configurations and I/O Settings

Each Pro Tools system can have a different path configuration, determined by:

- On Pro Tools systems, the type of audio interface or other physical I/O (including built-in hardware)
- On Avid HDX, Pro Tools|HD, and HD Native systems, the number and types of audio interfaces

Path configurations in Pro Tools are saved as I/O settings.

I/O Settings are saved with both the session and with the system. You can choose whether or not the IO settings saved with the session overwrite the IO settings saved with the system (see “Sessions Overwrite Current I/O Setup When Opened” on page 100).

Unavailable items (including hardware, paths, or required resources) remain in the session as inactive items (see “Making Paths Active or Inactive” on page 112).

When you create a new session, you can specify which I/O Settings to use. For example, you can use the factory installed default settings, the “Last Used” setting, or one of any available custom I/O settings files.



See “Factory I/O Settings” on page 118 and “I/O Settings Files” on page 119 for more information.

Default I/O Settings

Pro Tools comes with default I/O Setup settings to get you started (see “Factory I/O Settings” on page 118). You should only need to open the I/O Setup if you want to customize I/O paths or if you change your system hardware (for example, adding an expansion card to HD I/O, or adding or removing an audio interface).

You can always return to the default settings for an I/O Settings page by clicking the Default button. These paths are available in session tracks and are reflected in the I/O Setup.

You can customize your I/O Setup configuration at any time, according to the needs of each project (see “Customizing I/O Settings” on page 100).


I/O Setup Pages


The I/O Setup provides tabs to open pages for configuring specific I/O Settings.

Opening an I/O Setup Page

To open an I/O Setup page:

- Click the corresponding tab at the top of the I/O Setup.

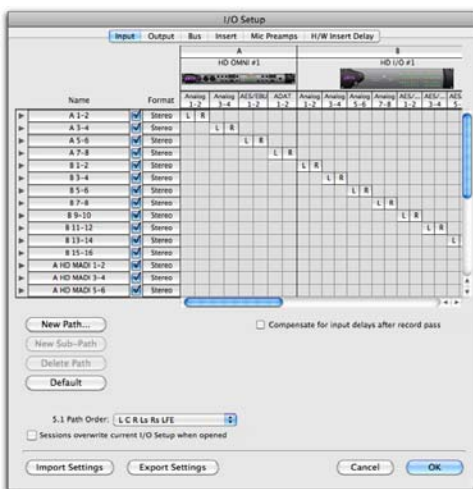
 Hold the Command key (Mac) or the Control key (Windows) and use the Left or Right Arrow keys to cycle through the different pages of the I/O Setup.

 It is recommended that if you choose to customize your I/O Setup, configure the system-specific options first: Input, Output, Insert, Mic Preamps, and H/W Insert Delay. Then configure the Bus page. Once you have configured your system, you should not need to change it unless you add or remove hardware (such as audio interfaces) from your system. See “Customizing I/O Settings” on page 100.

Input Page

The Input page of the I/O Setup lets you create and assign Pro Tools Input channels to receive audio from the physical inputs of your audio hardware.

Configure input signal path names, formats, and source channel (analog or digital) on the Input page. Multichannel input paths (stereo or greater) can have any number of sub-paths. Input channels can have overlapping input paths. Input names, channel widths, and physical input mappings are saved with the system and the session, and can be recalled from either.

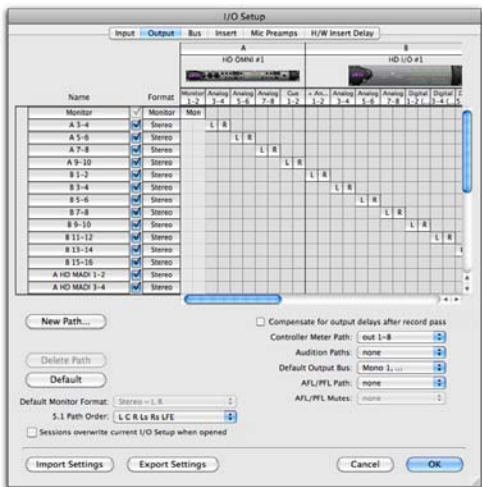


I/O Setup, Input page

Output Page

The Output page of the I/O Setup lets you create and assign Pro Tools Output channels to send audio to the physical outputs of your audio hardware.

Configure output signal path names and formats on the Output page. Output channels can have overlapping output paths. Output names, channel widths, and physical output assignments are saved with the system and the session, and can be recalled from either.

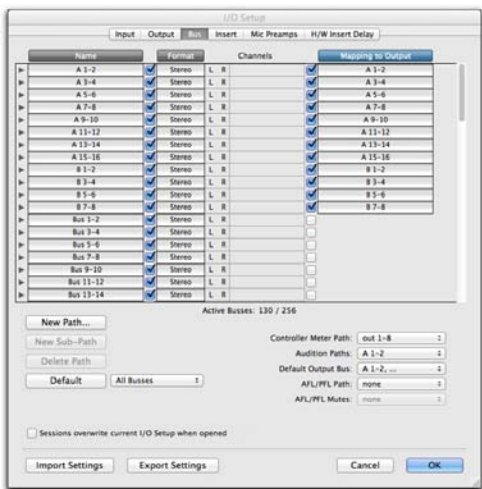


I/O Setup, Output page

Bus Page

The Bus page of the I/O Setup lets you create and edit internal mix busses and output busses. The Bus page also lets you map output busses to output paths (as configured in the Output page of the I/O Setup).

Configure bus path names and formats, and map any main bus path to any available output of the same width or greater. Multichannel bus paths (stereo or greater) can have any number of sub-paths. Output bus and internal mix bus names and channel widths are saved with and recalled from the session.



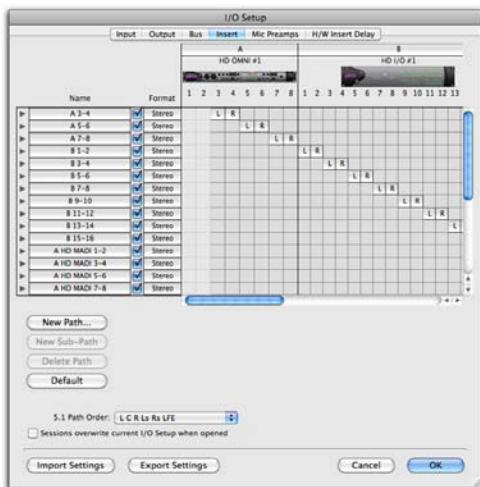
I/O Setup, Bus page

For more information, see “Configuring Busses” on page 114.


Insert Page

The Insert page of the I/O Setup lets you create and edit hardware insert signal paths for the Pro Tools mixer. Hardware inserts can route audio through an external device connected to parallel inputs and outputs of a Pro Tools audio interface. This lets you process audio on a track with a hardware insert in real time.

Insert paths require audio interface inputs and outputs, and are determined by the configuration of the Insert page in the I/O Setup for your system.

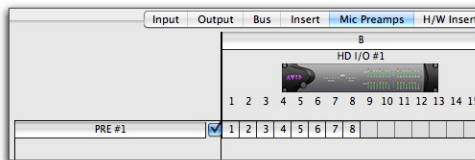


I/O Setup, Insert page

 For more information, see “Using Hardware Inserts” on page 1014.

Mic Preamps Page

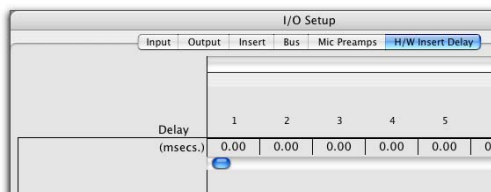
On the Mic Preamps page of the I/O Setup, signal paths for one or more PRE multi-purpose microphone preamplifiers can be mapped to audio interfaces. For more information, see the *PRE Guide*.




Mic Preamps page

H/W Insert Delay (Compensation) Page

To compensate for the delay (latency) of any external hardware devices (such as an effects unit) used in your session, you can set the amount of Hardware Insert Delay Compensation (in milliseconds) for each external device. These times will be used by the Delay Compensation Engine to time-align input paths when the hardware insert is in use and Delay Compensation is enabled.

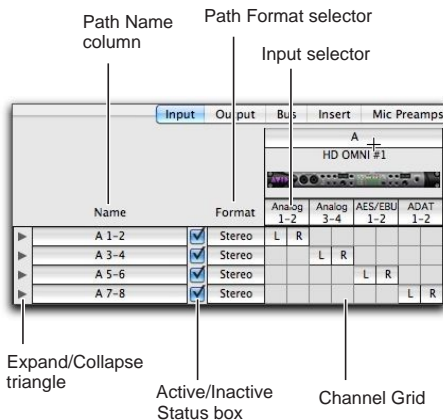


Insert offset delay field

 For more information, see “Setting a Hardware Insert Delay Offset” on page 978.

I/O Setup Signal Path Controls

Depending on the I/O Setup page, the I/O Setup provides the following controls in its graphical section for configuring signal routing paths.



I/O Setup, Signal Path controls (Input page shown)

Input and Output Selectors Let you select the physical ports on your audio interface to route to Pro Tools inputs and outputs. Ports are selectable in channel pairs. Available ports for each displayed interface are based on Hardware Setup settings; for example, if the AES/EBU inputs and outputs of an interface are enabled in Hardware Setup, they are available for routing in I/O Setup. The functionality provided with the Input and Output selector is the same as that provided on the Main page of the Hardware Setup.

Path Name Column Shows paths that are available for selection, including the name of each defined path. Path names can be renamed.

Expand/Collapse Triangle Shows or hides the subpaths associated with a main path (Input and Bus paths only).

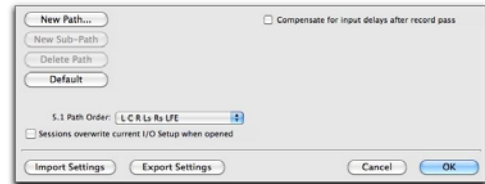
Active/Inactive Status Box Shows and changes the active/inactive status of each path.

Path Format Selector Shows and selects the type/format (such as Mono, Stereo, Quad, or 5.1) of each defined path (greater-than-stereo multi-channel formats are supported with Pro Tools HD and Pro Tools with Complete Production Toolkit only).

Channel Grid Assigns paths to specific interfaces and channels.

I/O Setup Buttons

Depending on the I/O Setup page, the I/O Setup can provide the following buttons for configuring signal routing.



I/O Setup, Signal Path buttons (Input page shown)

New Path Button Lets you create a new path on signal path pages for Input, Output, Insert, Bus, or Mic Preamp.

New Sub-Path Button Lets you create a new sub-path on signal path pages for Input, Insert, or Bus.

Delete Path Button Lets you delete any selected path or sub-path on signal path pages for Input, Output, Insert, or Bus.


Import Settings Button Lets you import an I/O settings file to reconfigure I/O Setup. Import Settings only imports the settings for the currently viewed page of the I/O Setup (such as the Input page).



Option-click (Mac) or Alt-click (Windows) the Import Settings button to import settings to all pages of the I/O Setup.

Export Settings Button Lets you save I/O settings as a file that can be imported into other sessions or used on other Pro Tools systems. Export Settings exports the settings for all pages of the I/O Setup.

Default Button Resets a path type to its default path configuration, depending on the physical hardware I/O you are using and how your hardware is configured.

 *Option-click (Mac) or Alt-click (Windows) the Default button to restore defaults to paths in all pages of the I/O Setup.*

Show Last Saved Setup Appears in the I/O Setup in certain session transfer situations. For details on this feature, see “Show Last Saved Setup and Show Current Setup” on page 122.

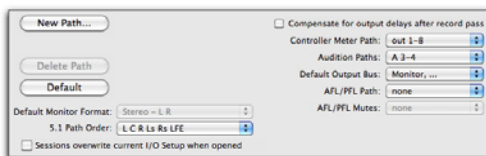
Pop-Up Menu Selectors I/O Options Provide selectors with pop-up menus to set paths or orders. The Output and Bus pages provide a Controller Meter Path selector. The Output page also provides selectors for Audition Paths (Clip List and DigiBase previewing), New Track Default Output, Default Path Order, AFL/PFL Path (Pro Tools HD with Avid HDX, Pro Tools|HD, or HD Native hardware only), and AFL/PFL Mutes (Pro Tools HD with Avid HDX, Pro Tools|HD, or HD Native hardware only). See “I/O Setup Options” on page 96.

Cancel Button Closes the I/O Setup without saving changes.

OK Button Closes the I/O Setup and saves any changes.

I/O Setup Options

Pro Tools systems have several additional I/O Setup options depending on which page of the I/O Setup you are viewing. These include default signal routing for metering and auditioning, and default track layout for multichannel mix formats.



I/O Setup, Signal Path options (Output page shown)

Compensate for Delays After Record Pass

(Avid HDX, Pro Tools|HD, and HD Native Systems Only)

Pro Tools provide two options for compensating for input and output latency (due to ADC and DAC) after recording.

Compensation for Input Delays After Record Pass

When enabled, this option provides automatic compensation for any analog or digital input delay with Avid HD interfaces. Enable this option for all recording situations. When recording from a digital source, both the Compensation for Input Delays After Record Pass and the Compensation for Output Delays After Record Pass options must be enabled.

The Compensation for Input Delays After Record Pass option is only available in the Input page of the I/O Setup.

Compensation for Output Delays After Record Pass

When enabled, this option provides automatic compensation for any analog or digital output delay with Avid HD audio interfaces. Enable this option when you are synchronized to an external clock source. When recording from a digital source, both the Compensation for Input Delays After Record Pass and the Compensation for Output Delays After Record Pass options must be enabled.

The Compensation for Output Delays After Record Pass option is only available in the Output page of the I/O Setup.

Controller Meter Path

The Controller Meter Path selector determines the path displayed across the Output meters of D-Control or D-Command worksurfaces. For more details, see your control surface documentation.

The Controller Meter Path selector is available in the Output and Bus pages of the I/O Setup.

Audition Paths

You can specify the output path through which files and clips are previewed (auditioned) in the Clip List or in DigiBase browsers, and when previewing AudioSuite processing.

The Audition Paths selector is available in the Output and Bus pages of the I/O Setup.



For information on previewing audio, see “Previewing Clips in the Clip List” on page 279 or “Previewing Audio in DigiBase” on page 309.

Using the Default Audition Path

When you preview a file or clip in the Clip List in a DigiBase browser, or when AudioSuite processing, Pro Tools routes the audio output through the specified Audition Path. Pro Tools assigns a default Audition Path to the first available main Output path of the corresponding format. You can also select a different Audition Path in the I/O Setup.

Configuring Audition Paths

You can specify the monitoring outputs for auditioning audio in the Clip List and DigiBase browsers, or for previewing AudioSuite processing, using the Audition Paths pop-up menu.

Audition Paths Main Menu The main menu consists of all path format choices available on the current system (Mono and Stereo on all systems, and LCR and greater on Pro Tools HD or Pro Tools with Complete Production Toolkit only).

Audition Paths Submenus Each path format choice has a submenu listing Output paths of that given format. (The mono submenu lists Output paths of any format.)

To configure an Audition Path:

- Select a path from the Audition Paths pop-up menu or submenus.

Default Output Bus

You can specify the default output bus path assignment for new tracks, in each available format.

The Default Output Bus selector is available in the Output and Bus pages of the I/O Setup.



The Default Output Bus can be set for internal mix bus paths, as well as for output bus paths.

To specify a default output for new tracks in the I/O Setup:

- Click the Default Output Bus pop-up menu and select a format and output bus path.

AFL/PFL Path

(Pro Tools HD with Avid HDX, Pro Tools|HD, or HD Native Hardware only)

Tracks soloed in AFL (After Fader Listen) or PFL (Pre Fader Listen) Solo mode are routed to the current AFL/PFL Path, as set with the AFL/PFL Path selector.

The AFL/PFL Path selector is available in the Output and Bus pages of the I/O Setup.



See “Solo Modes” on page 251 for more information on using AFL or PFL Solo modes.

To select the AFL/PFL Path output:

- Select a path from the AFL/PFL Path pop-up menu.



Selecting None as the AFL/PFL Path disables AFL and PFL Solo modes. When None is selected, AFL and PFL cannot be used.



On Pro Tools|HD systems, if you do not see the AFL/PFL Path selector, confirm that you have installed the Surround Mixer in the Plug-Ins (Used) folder. For information on switching Mixer plug-ins, see the Pro Tools|HD User Guide.

Setting AFL or PFL Path Levels

You can set a separate master AFL/PFL Path level for all AFL solos and all PFL solos.



Tracks do not need to be soloed to have the master AFL/PFL Path level adjusted.

To set the AFL/PFL Path level for AFL or PFL solos:

- 1 Choose Options > Solo Mode, and select a Solo mode:
 - To set the level for AFL solos, select AFL.
 - To set the level for PFL solos, select PFL.
- 2 In the Mix or Edit window, Control-click (Windows) or Command-click (Mac) a Solo button on any track.
- 3 Adjust the AFL/PFL Path fader.
- 4 Click on the new fader position (or press Esc) to close the fader display.




To set the AFL/PFL Path level to 0 dB, Control-Shift-click (Windows) or Command-Control-click (Mac) any Solo button.

AFL/PFL Mutes (Output Path) (Systems without a D-Control or D-Command Control Surface)

If you are not using a D-Control or D-Command worksurface, your regular Pro Tools output path can be muted when you send a signal to the AFL/PFL Path. The muted path is set with the AFL/PFL Mutes (Output Path) selector.

The AFL/PFL Mutes selector is available in the Output and Bus pages of the I/O Setup.

 See “Solo Modes” on page 251 for more information on selecting and using AFL or PFL Solo modes.

To set which output path is muted when tracks are soloed in AFL or PFL Solo mode:

- 1 Choose Setup > I/O.
- 2 Click the Output tab to display the Output page.
- 3 Select a path from the AFL/PFL Mutes (Output Path) pop-up menu.
- 4 Click OK to save your changes to the I/O Setup and close the I/O Setup.

Low Latency Monitoring (HD Native Systems Only)

With HD Native systems, the Output page of the I/O Setup lets you enable (or disable) Low Latency Monitoring. It also lets you specify any available Output path for Low Latency Monitoring. The Output path for Low Latency Monitoring can be of any channel width (from Mono to 7.1). Low Latency Monitoring uses Outputs 1–2 by default.

To configure Low Latency Monitoring in the I/O Setup:

- 1 Open the I/O Setup dialog (Setup > I/O).
- 2 Click the Output tab.
- 3 Enable the Low Latency Monitoring option.
- 4 From the Low Latency Monitoring pop-up menu, select the Output path you want to use for Low Latency Monitoring.
- 5 Click OK to save your changes and close the I/O Setup.

Default Monitor Format (Pro Tools HD and Pro Tools with Complete Production Toolkit Only)


The Default Monitor Format pop-up menu lets you select the default monitor format (Stereo, 5.1, or 7.1) for new Output paths and for when you click the Default button.

This setting does not affect existing path definitions or metering—it only specifies channel mapping in new 5.1-format paths.

The Default Monitor Format selector is only available in the Output page of I/O Setup.

To choose a Default Monitor Format:

- Select the channel mapping from the Default Monitor Format pop-up menu.

 For more information about multichannel mixing, see Chapter 46, “Pro Tools Setup for Surround.”

5.1 Path Order

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

The 5.1 Path Order pop-up menu lets you specify the default track layout for all new 5.1 format paths you create.


The 5.1 Path Order selector is available in the Input, Output, and Insert pages of the I/O Setup.

To choose a new default 5.1-format path order (track layout):

- 1 Choose Setup > I/O.
- 2 Click the Output tab.
- 3 Use the 5.1 Default Path Order setting to select the track layout you want (C|24/Film, SMPTE/ITU, DTS/ProControl Monitoring, or D-Command/D-Control).


Sessions Overwrite Current I/O Setup When Opened

This option determines whether or not, when opening a session, Input, Output, and Insert I/O settings as currently configured on your system will be overwritten by any of these I/O Settings stored with a session.

 *Enable the Sessions Overwrite Current I/O Setup When Opened option for legacy Pro Tools behavior (versions lower than 8.1). This option is enabled by default.*


◆ When the Sessions Overwrite Current I/O Setup When Opened option is disabled, Pro Tools recalls these settings from the system. Choose this option when exchanging sessions among different systems running Pro Tools 8.1 or higher (see “Session Interchange” on page 120).

◆ When the Sessions Overwrite Current I/O Setup When Opened option is enabled (default), Pro Tools recalls these settings from the session rather than the system. Choose this option when exchanging sessions with systems running Pro Tools 8.0.x and lower (see “Session Interchange” on page 120).

 *Enabling or disabling this option in any page of the I/O Setups affects all of the other pages as well.*


Customizing I/O Settings

The following shows how to customize your I/O settings for your particular studio setup. Making sure that Sessions Overwrite Current I/O Setup When Opened option is not enabled ensures that your custom settings remain intact when opening sessions.

 *If you are using an HD OMNI, be sure to configure the Monitor page of the Hardware Setup for HD OMNI before configuring the I/O Setup. For more information, see the HD OMNI Guide.*

To customize I/O Settings:

- 1 Open the I/O Setup (Setup > I/O).
- 2 Import I/O settings from an existing I/O settings .pio file (see “Importing I/O Settings” on page 119).

 *You can prepare a session for use on a different system this way. Any paths for hardware that is not present on the current system will appear as inactive.*

- 3 For Avid HDX, Pro Tools|HD, and HD Native systems, double-click the label above an interface and enter a name.



With systems using Avid HDX, Pro Tools|HD, or HD Native hardware, the I/O Setup bases default Input and Output path names on the custom name given to the interface.

- 4 Click the Input tab and do the following:
 - Create input paths and sub-paths with appropriate widths and physical input assignments that match your studio configuration (see “Signal Path Routing for Audio Output” on page 105).
 - Rename input paths and sub-paths to match your studio configuration.
- 5 Click the Output tab and do the following:
 - Create output paths with appropriate widths and physical output assignments that match your studio configuration.
 - Rename output paths to match your studio configuration. Use standard industry terminology whenever possible (see “Recommended Output Path Naming Schemes” on page 110).
- 6 If you plan on using hardware inserts, click the Insert tab and do the following:
 - Create insert paths with appropriate widths and physical input and output assignments that match your studio configuration.
 - Name insert paths to match your studio configuration. Name insert paths using standard industry terminology if possible, such as “Compressor,” “Reverb,” “EQ,” and so on.
 - Click the H/W Insert Delay tab and enter the correct insert delay in milliseconds for each input/output pair that you are using for hardware inserts. (See “H/W Insert Delay (Compensation) Page” on page 94.)

- 7 If you are using one or more PRE peripherals, click the Mic Preamps tab and configure it accordingly (see the *PRE Guide*).

- 8 Click the Bus tab.

- 9 Create internal mix bus paths and sub-paths. Ensure that output busses are mapped to the correct output paths (see “Output Busses” on page 115).



Output busses are automatically created and mapped to outputs when new output paths are created.

- 10 In any of the I/O Setup pages, make sure that the Sessions Overwrite Current I/O Setup When Opened option is not enabled. This way, when opening sessions created on another system, your custom I/O settings remain intact.
- 11 Export your I/O settings to create a backup of your current settings (see “Exporting I/O Settings” on page 120).
- 12 Click OK. You should not have to open the I/O Setup again unless you add or remove hardware to or from your system, or if you open a session created on a different system (see “Session Interchange” on page 120).

Configuring Hardware in I/O Setup

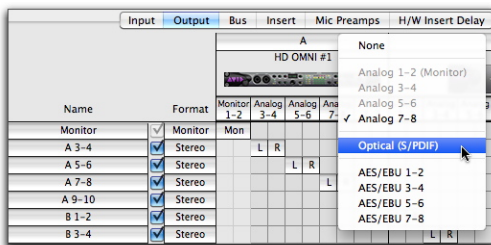
(Avid HDX, Pro Tools|HD, and HD Native Systems Only)

With Avid HDX, Pro Tools|HD, and HD Native systems, you can define which physical ports on your audio interface are routed to available input and output channels in the I/O Setup. Any changes made here are also reflected in the Hardware Setup, and vice-versa (see “Configuring Pro Tools Hardware Settings” on page 74).

💡 *HD MADI, and Pro Tools systems such as the Mbox Pro and the 003 are “hard-wired” and cannot be changed. For third-party and built-in hardware, in the Hardware Setup click the Launch Setup App button to for available configuration options.*

To configure I/O routing in I/O Setup:

- 1 Choose Setup > I/O.
- 2 Click the Input or Output tab to display the corresponding path type.
- 3 Click the Input or Output selector for the first interface channel pair, located below the first audio interface icon.
- 4 From the pop-up menu, select a physical port pair (such as Analog 1–2), to route to a Pro Tools channel pair (such as A 1–2) in the Path Name column on the left.



I/O Channel selector pop-up menu

- 5 Repeat the above step for additional channel pairs.
- 6 Click OK to save changes and close the I/O Setup.

💡 *The Monitor path for HD OMNI is fixed and cannot be changed in the I/O Setup. The Monitor path for HD OMNI can be configured in the Monitor page of the Hardware Setup.*

Routing a Pro Tools Output Pair to Multiple Destinations

Pro Tools channel pairs can be routed to multiple outputs on an audio interface through the I/O Setup. For example, if you assign both Analog 1–2 and Analog 3–4 interface outputs to Pro Tools Output pair 1–2, when you send a signal to Pro Tools Outputs 1–2, that signal will be routed simultaneously to both pairs of output ports on your audio interface.

This lets you send the same signal (such as a stereo pair, a stem mix, or a multichannel mix) to multiple destinations (such as multiple mastering devices).

The only limit to output choices is the number of outputs available in your system.

📖 *Output path assignments can overlap in certain situations. See “Valid Paths and Requirements” on page 114 for details.*

Pro Tools outputs pairs can also be routed to multiple audio interface outputs in the Hardware Setup.

To route a Pro Tools output channel pair to multiple audio interface output ports:

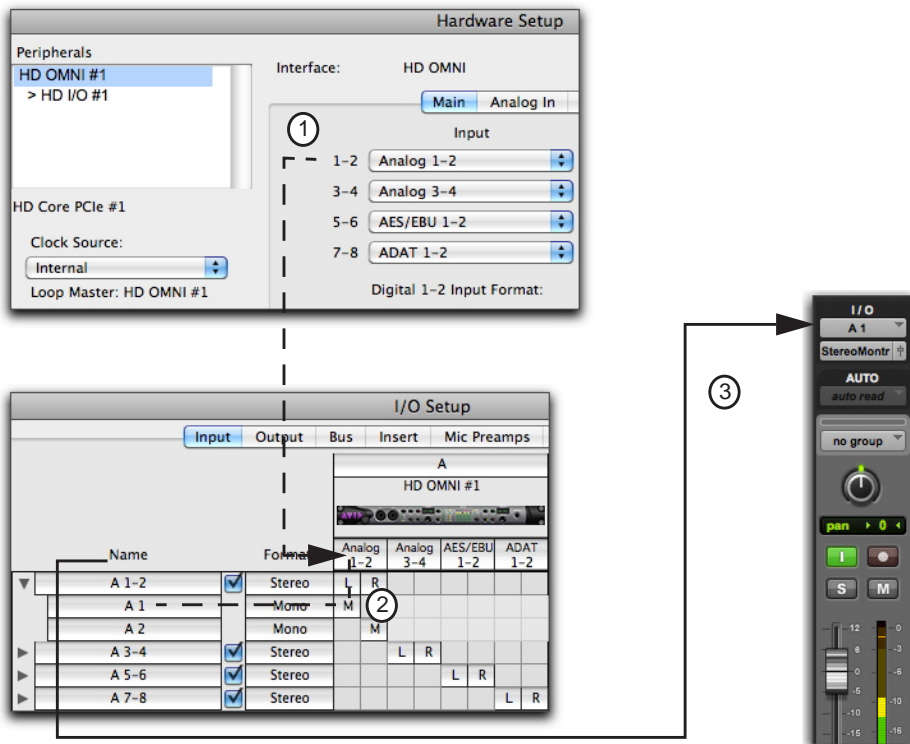
- 1 Choose Setup > I/O.
- 2 Click the Output tab.
- 3 Click the Output selector for an interface channel pair, just below an audio interface icon.
- 4 From the pop-up menu, select a physical port pair (such as Analog 1–2) to route to the corresponding Pro Tools channel pair (such as A 1–2) in the Path Name column on the left.
- 5 Start-click (Windows) or Control-click (Mac) the same Output selector and select an additional output pair from the same pop-up menu.

The output name updates with a plus sign (“+”) before it to indicate that multiple output ports are selected. In the pop-up menu, each physical port pair assigned to that Pro Tools output pair is indicated by a check mark.

- 6 Repeat the above steps to select additional output destinations.
- 7 Click OK to save changes and close the I/O Setup.


Signal Path Routing for Audio Input

The following example shows the signal path from the physical analog input of an HD OMNI audio interface, through the Pro Tools audio input path, to the Input of an audio track in the Pro Tools mixer:



Input signal path from an HD OMNI to the Pro Tools mixer as mapped in I/O Setup

(1) Physical Input For Avid HD interfaces, such as the HD OMNI, the physical inputs that are available to Pro Tools are set on the Main page of the Hardware Setup (this selector is mirrored in the Input page of the I/O Setup).

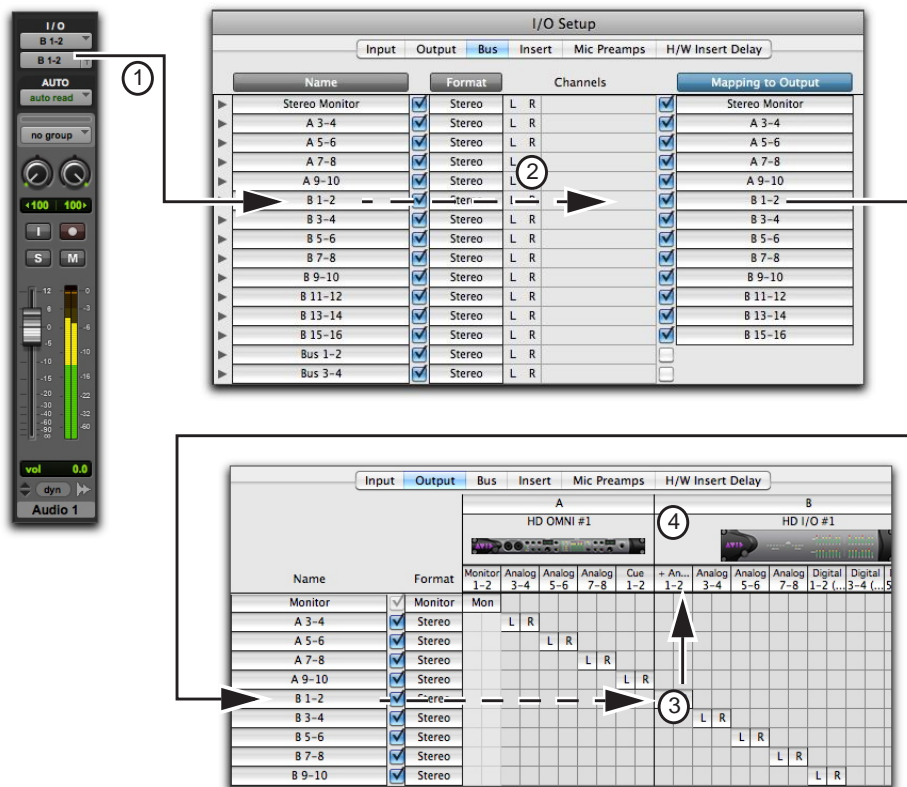
 For Pro Tools systems such as the Mbox Pro and the 003, physical inputs are fixed. For third-party and built-in hardware, in the Hardware Setup click the Launch Setup App button for available configuration options.

(2) Input Path Main input paths and sub-paths are routed (patched) to physical inputs using cross-point matrix mapping in the I/O Setup. In this example, audio input is routed from HD OMNI physical inputs Analog 1-2 to Pro Tools Input channels A 1-2.

(3) Track Input Input paths and sub-paths are routed to track inputs in the Pro Tools mixer by selecting the path (or sub-path) from the Track Input selector. In this example, input sub-path A 1 is routed to the input of track "Audio 1."

Signal Path Routing for Audio Output

The following example shows the signal path from the output of an audio track through an output bus mapped to an output path that is routed to a physical output on an HD I/O audio interface:



Output signal path from an audio track to a physical output as mapped in I/O Setup

(1) Track Output Audio is played back from disk and routed from the Track Output to Output Bus "B 1-2."

(2) Output Bus Path The Output Bus is defined on the Bus page of the I/O Setup. On the Bus page of the I/O Setup, the Output Bus "B 1-2" is mapped to Output "B 1-2," which is defined on the Output page of the I/O Setup.

(3) Output Path On the Output page of the I/O Setup, the Grid is used to route the output path (to which the output bus is mapped) to physical outputs.

(4) Physical Output For Avid HD audio interfaces, such as the HD OMNI, the physical outputs that are available to Pro Tools are set on the Main page of the Hardware Setup (this selector is mirrored in the Output page of the I/O Setup).



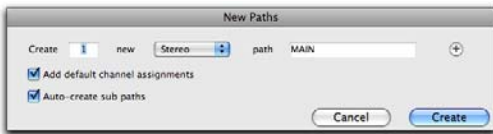
For Pro Tools systems such as the Mbox Pro and the 003, physical outputs are fixed. For third-party and built-in hardware, click the Launch Setup App button in the Hardware Setup for available configuration options.

Creating New Paths

The I/O Setup lets you create new paths with custom names, formats, and assignments to physical I/O. Custom path names appear in a session's track Input, Output, Insert, and Bus selectors.

To create a new path:

- 1 Choose Setup > I/O.
- 2 Click the Input, Output, Insert, or Bus tab to display the corresponding path type.
- 3 Click New Path.
- 4 In the New Path dialog, specify the number of new paths you want to create, the channel width for each path, and the path name.



New Paths dialog

- 5 Do one of the following:
 - To add more paths, click the Add Row button.
 - To remove a path, click the Remove Row button.



Add a new path by pressing Command+N (Mac) or Control+N (Windows), or by pressing Command+Plus (+) (Mac) or Control+Plus (+) (Windows) on the numeric keypad.



To remove the last path from the New Path dialog Command+Minus (–) (Mac) or Control+Minus (–) (Windows).

- 6 Enable (or disable) the New Paths options Add the Default Channel Assignments and Auto-Create Sub-paths.
- 7 Click Create.



When you create a new Output path, an output bus is automatically created on the Bus page of the IO Setup, and is automatically mapped to the output path you created. See “Output Busses” on page 115.

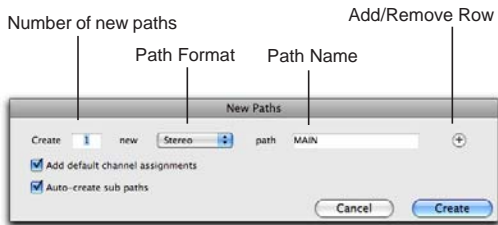
- 8 Assign the path to a specific audio interface (Input, Output, and Insert pages only) in the Grid column. See “Assigning Paths to Hardware I/O” on page 113.
- 9 Repeat the previous steps to configure all path types (Input, Output, Insert, or Bus).
- 10 Click OK to save changes and close the I/O Setup. If there are any identically named paths, you will be instructed to correct them before the I/O Setup will close. For more information, see “Valid Paths and Requirements” on page 114.



Multichannel paths and mixing are explained in Chapter 46, “Pro Tools Setup for Surround.”

New Paths Dialog

The New Paths dialog lets you create new paths on the Input, Output, Bus, and Insert pages of the I/O Setup.



New Paths dialog

New Path Row Settings

Number of New Paths Enter the number of new paths you want to create (or a certain type, like “Bus”).

Path Format Select the channel width from the Path Format selector.

Path Name Enter the path name. If you are creating more than one path, the number of each new path will be appended to the path name (for example, Bus 1, Bus 2, Bus 3, and so on).

Add/Remove Rows Click the Add Row button to add more paths, or click Click the Remove Row button to remove paths.

Move Row Icon Drag a Move Row icon up or down to reorder paths.



Move Row icon in the New Paths dialog

Add Default Channel Assignments Option

Enable Add Default Channel Assignments option if you want Pro Tools to automatically assign input, output, and insert paths to physical inputs and outputs in the Grid (from the first available channel to the maximum number of channels available). If the number of new paths of a certain width exceeds the number of available channels, Pro Tools wraps around and starts over at channel 1.

Auto-Create Sub-Paths Option

For input, bus, and insert paths, enable the Auto Create Sub-Paths option to have Pro Tools automatically create the default set of sub-paths for the path format (channel width), as follows:

Default Sub-Paths


Main Path	Sub-Paths	Sub-Path Name
Mono	N/A	N/A
Stereo	2 mono	<main path name> followed by channel designation .L and .R
LCR	1 Stereo (LR), 3 Mono (one for each channel)	Stereo: <main path name>.LR Mono: <main path name>.L, .C, .R

Default Sub-Paths

Main Path	Sub-Paths	Sub-Path Name
LCRS	1 Stereo (LR), 4 Mono (one for each channel)	Stereo: <main path name> .LR Mono: <main path name> .L, .C, .R, .S
Quad	1 Stereo (LR), 4 Mono (one for each channel)	Stereo: <main path name> .LR Mono: <main path name> .L, .R, .Ls, .Rs
5.0 – 6.0 – 7.0	1 Stereo (LR), 5–7 Mono (one for each channel)	Stereo: <main path name> .LR Mono: <main path name> .L, .C, .R, .Ls, .Rs, and so on
5.1 – 6.1 – 7.1	1 Stereo (LR), 6–8 Mono (one for each channel)	Stereo: <main path name> .LR Mono: <main path name> .L, .C, .R, .Ls, .Rs, and so on, and LFE

Creating New Sub-Paths


You can create sub-paths for main paths in the Input, Bus, and Insert pages of the I/O Setup.

 *You cannot create sub-paths for outputs in the Outputs page of IO Setups. You can, however create overlapping output paths.*

To create a new sub-path:

- 1 Select the page of the I/O Setup where you want to create sub-paths (such as the Input page).
- 2 Select the Main path for which you want to create sub-paths.
- 3 Click New Sub-Path.
- 4 Name the new sub-path.

- 5 Select the Format for the new sub-path (such as Mono).

 *With Pro Tools|HD systems, to optimize DSP resources, it is best to create mono sub-paths for output busses and internal mix busses, rather than mono main paths.*

- 6 Click in the Grid to assign the new sub-path channels to available main path channels.

Editing Paths

The I/O Setup lets you edit or customize signal path definitions.

Paths can be:

- Restored to default configurations
- Renamed, for easier identification after changing or renaming audio interfaces
- Selected and reordered to change menu order in track selectors
- Selected and deleted
- Remapped to or from different sources or destinations
- Deactivated (or reactivated) to manage unavailable or unnecessary I/O resources

In addition, you can import and export your I/O Setup configurations as I/O Settings files, as well as set default path parameters. See “I/O Settings Files” on page 119.

The following table lists the available attributes for each path type:

Path options that can be edited by type

Path Type	Path Options (Attributes)
Input	Names, formats, and source channel (physical input)
Output	Names, formats, and destination channel (physical output)
Insert	Names, formats, and destination (physical inputs and outputs)
Bus	Names, formats, output mapping


Interfaces can also be renamed.

Restoring Default Paths and Path Names

You can restore I/O Setup paths to their default state at any time. You may want to restore defaults if, for example, you replace or add an audio interface to your system.

To restore default paths and path names:

- 1 Choose Setup > I/O.
- 2 Click the Input, Output, Insert, or Bus tab to display the corresponding path type.
- 3 Click Default. Pro Tools does the following:
 - If a session is open, deletes any paths that are not in use.
 - Creates new default paths up to the capacity of your system's available physical I/O and resources.
 - Resets path names to the default path names (see "Default Path Names" on page 110). These default path names appear in track Input and Output Path selectors.

 *Option-click (Mac) or Alt-click (Windows) the Default button to set all pages of I/O Setup to the default settings.*


- 4 Click OK to save changes and close the I/O Setup.



Default stereo output paths

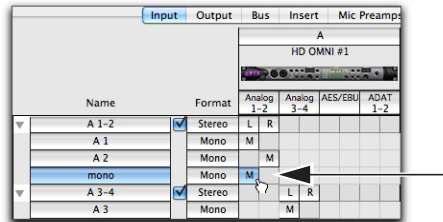
Renaming Paths

Path names can be customized in the I/O Setup.

 *I/O paths can also be renamed directly from the Edit or Mix window by Right-clicking the Input or Output selector and choosing Rename.*

To rename a path in the I/O Setup:

- 1 Double-click the path name.
- 2 Type a new path name.
- 3 Click OK to save changes and close the I/O Setup.



New mono Input sub-path for Main path A 1-2

Recommended Output Path Naming Schemes

Generally, you will want to use standard naming schemes for output paths in your Pro Tools sessions. This facilitates smoother session exchange between different Pro Tools systems.

Here are some examples of standard industry naming schemes:

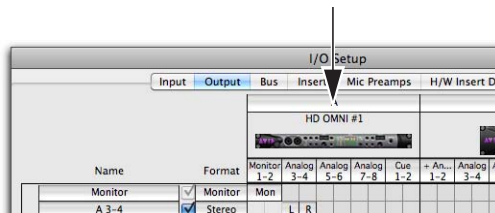
- Main A, Main B
- Studio A, Studio B
- Stereo A, Stereo B
- Meter
- Monitor
- Aux A, Aux B
- Cue A, Cue B, Cue C, Cue D, Cue E, Cue F, Cue G, Cue H, Cue I, Cue J
- Dial Main, Dial A, Dial B, Dial C, Dial B, Dial E
- Efx Main, Efx A, Efx B, Efx C, Efx D, Efx E
- Music Main, Music A, Music B, Music C, Music D, Music E

Renaming Interfaces

Audio interfaces can be renamed in the I/O Setup. When you rename Avid HD audio interfaces, default path names are based on the custom name given to the interface.

To rename an audio interface in the I/O Setup:

- 1 Double-click the label above an interface.



Interface Names

- 2 Type a new interface name.
- 3 Click OK to save changes and close the I/O Setup.

Default Path Names

Default names for input, output, and insert paths are based on the hardware you are using for physical I/O.

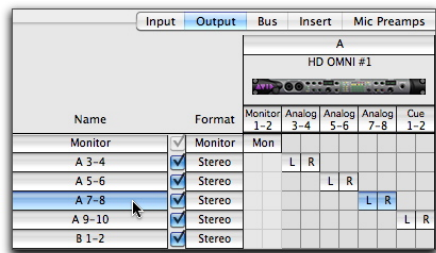
For Avid HDX, Pro Tools|HD, and HD Native systems, default path names are based on the names of interfaces you are using. If you have renamed your interface, default path names are based on the custom name.

Selecting Paths

Individual and multiple paths can be selected in the I/O Setup Path Name column. Selected paths and sub-paths can be reordered higher or lower in the Path Name column to change their menu order in track Input, Output, Insert, and Bus selectors. Paths can also be deleted. Sub-paths follow their main paths when they are moved in the I/O Setup.

To select a main path or sub-path:

- Click the path name.



Selecting paths in the I/O Setup

To select a range of paths:

- 1 Click the path name.
- 2 Shift-click an additional path name.

All paths between the first selected path name and the additional path name will also be selected.

To select or deselect noncontiguous paths, do one of the following:

- Command-click (Mac) or Control-click (Windows) path names that are un-highlighted to select them.
- Command-click (Mac) or Control-click (Windows) path names that are highlighted to deselect them.

To select all paths and sub-paths:

- Option-click (Mac) or Alt-click (Windows) any path name that is un-highlighted.

To deselect all paths and sub-paths:

- Option-click (Mac) or Alt-click (Windows) any path name that is highlighted.

Reordering Paths

Selected paths and sub-paths can be reordered higher or lower in the Path Name column to change their menu order in track Input, Output, Insert, and Bus selectors.

To reorder paths in the I/O Setup and Track selectors:

- 1 Drag one or more selected path names up or down.
- 2 Click OK to save changes and close the I/O Setup.

Deleting Paths

Path definitions can be deleted from the current session to reflect changes to your hardware setup, or to clean up track selector menus by removing unwanted or unnecessary path definitions. After deleting a path, any tracks or send assignments to that path are reset to No Output.

To delete a main path or sub-path:

- 1 In the I/O Setup, select the path you want to delete.
- 2 Click Delete Path.
- 3 Click OK to save changes and close the I/O Setup.

To delete all paths:

- 1 Option-click (Mac) or Alt-click (Windows) any path name.
- 2 Click Delete Path.
- 3 Click OK to save changes and close the I/O Setup.

Making Paths Active or Inactive

Pro Tools paths can be Active (on) or Inactive (off, or unavailable). Paths can be globally activated or deactivated in the I/O Setup. Making a signal path inactive will turn off the signal path on any and all tracks currently assigned to it.

Pro Tools also sets unavailable paths to inactive. Paths can be unavailable when hardware or other system resources are unavailable, such as when opening a session saved on a different system.

Tracks can also be made active or inactive. For information, see “Making Track Inputs and Outputs Inactive from the Edit or Mix Window” on page 243.

To globally activate or deactivate a path:

- 1 Choose Setup > I/O.
- 2 Select a path type using the tabs at the top of the window.
- 3 Set the Active/Inactive control for the path.



Active (top) and inactive (bottom) path settings

Any tracks that were assigned to the now inactive path will show that path's name in italics on the track's I/O selectors.

- 4 Click OK to save changes and close the I/O Setup. Path status is displayed as follows:

Italics Indicates the path is inactive.

Non-Italics Indicates the path is active.




With overlapping output paths of different channel widths, if the widest path is made inactive, all other overlapped output paths will not pass audio from Pro Tools.

Assigning Paths to Hardware I/O

Paths are assigned to specific inputs, outputs, and inserts in the Grid. Paths can be assigned to physical I/O in the Grid, and can be reassigned at any time.


To assign channels:

- 1 Select (or create) a main path or sub-path.
- 2 Select the channel Format (such as Stereo).
- 3 In the row for the selected path, click in the Grid column under an audio interface and channel.

		HD OMNI #1				
						
Name	Format	Monitor 1-2	Analog 3-4	Analog 5-6	Analog 7-8	Cue 1-2
Monitor	<input checked="" type="checkbox"/> Monitor	Mon				
A 3-4	<input checked="" type="checkbox"/> Stereo					
A 5-6	<input checked="" type="checkbox"/> Stereo			L	R	
A 7-8	<input checked="" type="checkbox"/> Stereo				L	R

Assigning channels

Other channels for the path type, if any, fill to the right. For example, when assigning a new stereo path, clicking in the path row under output channel 1 fills both channel 1 and 2 (left to 1, right to 2).

 To *reassign channels in a path*, see “*Reassigning Paths*” on page 113.


- 4 Click OK to save changes and close the I/O Setup.

If there are any invalid settings, you will be required to correct them before the I/O Setup will close. For more information, see “Valid Paths and Requirements” on page 114.

Assigning Paths with the Surround Mixer (Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

When assigning multichannel paths, the left channel (L) is assigned first to the clicked Grid box, and remaining channels fill immediately to the right according to the default path order.

Because some multichannel mixing formats use unique track layouts, Pro Tools lets you set the default format in the I/O Setup (see “I/O Setup Options” on page 96).

		A							
		HD I/O #1							
									
Name	Format	+ An... 1-2	Analog 3-4	Analog 5-6	Analog 7-8	Digital 1-2	Digital 3-4	Digital 5-6	Digital 7-8
Stereo	<input checked="" type="checkbox"/> Stereo								
5.1	<input checked="" type="checkbox"/> 5.1	L	C	R	Ls	Rs	Lf		

Customized Output paths for a 5.1 mix

Reassigning Paths


You can move the individual assignments to different channels, to reorder the path’s definition (for example, changing a multichannel path to L-R-C-LFE-Ls-Rs).

To reassign channels in a path:

- Drag the channel to the new location in the Grid. Other channel assignments move (shuffle) to accommodate dragged channels.

Channel Shuffling

Moving a signal from right to left results in a shuffle of other signals after the new destination channel. Moving a signal from left to right shuffles any and all signals after the new destination channel and leaves the previous channel empty.

 Changing a path’s format erases any current channel assignment.

Sub-Paths Follow Main Paths

When a main path is reassigned, its sub-paths (if any) are reassigned automatically to maintain consistent routing. For example, reassigning a stereo path to different hardware outputs results in any of its sub-paths moving with it.

Valid Paths and Requirements

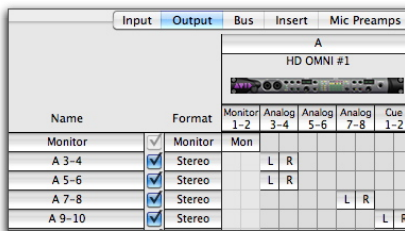
While configuring the I/O Setup, certain rules apply for path definition and channel assignment. All paths must be valid before the I/O Setup configuration can be applied.

Though it is possible to set up invalid assignments in the Channel Grid, Pro Tools will not accept an I/O Setup configuration unless all paths meet the path definition and channel assignment requirements, as follows:

Minimum Path Definitions All paths must have a name, be of a specific format, and have a valid I/O assignment.

Valid Paths Channel assignment follows certain rules regarding overlapping paths.

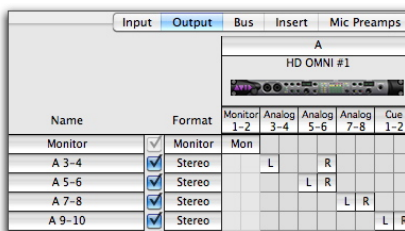
- There can be no partial overlaps between any two output paths.
- A newly-created output path must either be completely independent of other assignments (not assigned to any other available I/O interface/channels), or it must be a path completely contained within a larger path (for example, an LCR sub-path within a larger 5.1 path).



The screenshot shows the 'Output' tab of the I/O Setup window. The 'Name' column lists paths: Monitor, A 3-4, A 5-6, A 7-8, and A 9-10. The 'Format' column shows Monitor, Stereo, Stereo, Stereo, and Stereo. The 'Monitor' column has checkboxes, all of which are checked. The 'Analog' columns (1-2, 3-4, 5-6, 7-8) show channel assignments: Monitor to 1-2, A 3-4 to 3-4, A 5-6 to 3-4, A 7-8 to 5-6, and A 9-10 to 7-8. The 'Cue' column shows Cue 1-2 for Monitor.

Name	Format	Monitor	Analog 1-2	Analog 3-4	Analog 5-6	Analog 7-8	Cue 1-2
Monitor	Monitor	<input checked="" type="checkbox"/>	Mon				
A 3-4	Stereo	<input checked="" type="checkbox"/>		L R			
A 5-6	Stereo	<input checked="" type="checkbox"/>		L R			
A 7-8	Stereo	<input checked="" type="checkbox"/>			L R		
A 9-10	Stereo	<input checked="" type="checkbox"/>				L R	

Valid (complete) output path



The screenshot shows the 'Output' tab of the I/O Setup window. The 'Name' column lists paths: Monitor, A 3-4, A 5-6, A 7-8, and A 9-10. The 'Format' column shows Monitor, Stereo, Stereo, Stereo, and Stereo. The 'Monitor' column has checkboxes, all of which are checked. The 'Analog' columns (1-2, 3-4, 5-6, 7-8) show channel assignments: Monitor to 1-2, A 3-4 to 3-4, A 5-6 to 3-4, A 7-8 to 5-6, and A 9-10 to 7-8. The 'Cue' column shows Cue 1-2 for Monitor.

Name	Format	Monitor	Analog 1-2	Analog 3-4	Analog 5-6	Analog 7-8	Cue 1-2
Monitor	Monitor	<input checked="" type="checkbox"/>	Mon				
A 3-4	Stereo	<input checked="" type="checkbox"/>		L		R	
A 5-6	Stereo	<input checked="" type="checkbox"/>			L R		
A 7-8	Stereo	<input checked="" type="checkbox"/>				L R	
A 9-10	Stereo	<input checked="" type="checkbox"/>					L R


Invalid (partial) output path

Configuring Busses

Busses appear on the Bus page of the IO Setup. Pro Tools provides two types of busses:

- Output busses
- Internal mix busses

Output bus and internal mix bus settings are saved with and recalled from the session. The advantage of this is that when you take a session from one system to another, track and send assignments are maintained within the session. Where possible, Pro Tools can automatically remap the session's output busses to the output paths of the system the session is being opened on.

 See "Session Interchange" on page 120 for more information exchanging sessions between systems, and on opening sessions in lower version of Pro Tools. Output busses do not exist in Pro Tools 8.0.x and lower.

Output Busses

Output busses are *mapped* (routed) to output paths, as configured on the Output page of the I/O Setup. Output paths are then assigned to the system's physical audio outputs in the I/O Setup's Grid (see "Assigning Paths to Hardware I/O" on page 113).

When you create a new output path on the Output page of the I/O Setup, a new output bus of the same width is automatically created and mapped to that output path. Output busses are also created and mapped according to default settings when creating a new session or restoring defaults (see "Restoring Default Paths and Path Names" on page 109).

Physical outputs for output paths are configured on the Outputs page of the I/O Setup's Grid (see "Assigning Paths to Hardware I/O" on page 113).

Internal Mix Busses

Pro Tools provides up to 256 internal mix busses and are used to route audio signal from track outputs and sends to other track inputs and plug-in side-chains. Common uses for internal mix busses include effects sends and returns (such as bussing sends from audio tracks to an Auxiliary Input track for plug-in effects processing) and bus recording.

Internal mix busses can also be mapped to any outputs (see "Internal Mix Busses" on page 115).

Creating and Mapping Busses to Outputs

Any available bus can be mapped to any of the available output paths of the same channel width or greater. For example, a mono bus can be mapped to a mono output path, a stereo bus can be mapped to a stereo output path, and a 5.1 surround bus can be mapped to a 5.1 surround output path.

You can unmap busses from outputs at any time.

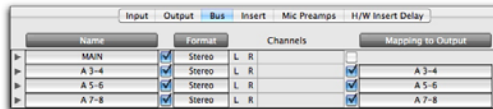
To create a bus and map it to an output path:

- 1 On the Bus page of the I/O Setup, click New Path.
- 2 In the New Paths dialog, specify the number of new paths you want to create, the channel width for each path, and the path name.



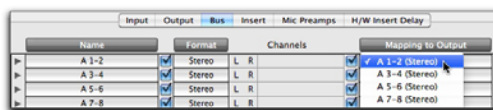
New Paths dialog

- 3 Click Create to create the new paths.



Unmapped "MAIN" output bus

- 4 Enable Mapping To Output for the path.
- 5 Select an output path from the Mapping To Output selector.



Mapping the "MAIN" output bus to output path "A 1-2"

Any signals from tracks or sends sent to the bus are now sent to the hardware outputs assigned to the corresponding Output paths.

To map all output busses of the same format to an output path:

- Option-click (Mac) or Alt-click (Windows) the Mapping To Output selector and select an output path (mono or stereo).

All mapped output busses of the same format (such as stereo) are all assigned to the same output path. For example, you can assign all stereo output busses to output path A 1–2.

To map all output busses of the same format to one output path:

- 1 Do one of the following:
 - Shift-click to select contiguous Output busses.
 - Command-click (Mac) or Control-click (Windows) to select noncontiguous Output busses.
- 2 Option-Shift-click (Mac) or Alt-Shift-click (Windows) the Mapping To Output selector for one of the selected Output busses and select an output path (mono or stereo).

Only the selected mapped output busses of the same format (such as stereo) are assigned to the same output path. For example, you can assign only the selected stereo output busses to output path A 1–2.

To map all busses of the same format to unique ascending output paths (cascading):

- Command-Option-click (Mac) or Control-Alt-click (Windows) the Mapping to Output selector of the top-most output path and select the first output path.

All busses of the same channel format are automatically assigned to unique output path assignments in ascending order. For example, for stereo output paths, output bus A 1–2 is assigned to output path A 1–2, A 3–4 to A 3–4, A 5–6 to A 5–6, and so on.

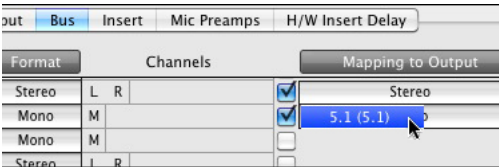
Mapping Mono Busses to Surround Paths

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

You can map a mono bus to any channel of a surround output path, for example, route a dialogue track to the center channel of 5.1 output path. (This capability is available for all output channel widths except Stereo and Quad outputs.)

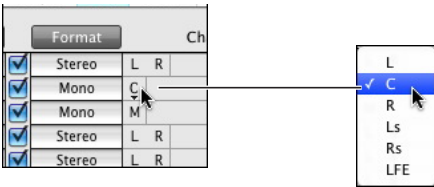
To map a mono bus to a channel of a surround output path:

- 1 On the Bus page of the I/O Setup, click New Path.
- 2 In the New Paths dialog, specify Mono channel width for the bus path, type a path name, and click Create.
- 3 Enable Mapping To Output for the path.
- 4 Select a multichannel output path from the Mapping To Output selector. The mono bus indicator changes to “C” (Center) by default, and a pop-up menu becomes available.



Selecting a multichannel output path

- 5 To assign another channel, click the mono bus indicator and select the channel from the pop-up menu.



Assigning a channel to a mono bus

To assign the same channel to all mono busses mapped to a multichannel output path:

- Option-click (Mac) or Alt-click (Windows) the mono bus indicator and select the channel from the pop-up menu.

To assign the same channel to all selected mono busses mapped to a multichannel output path:

- 1 Do one of the following:
 - Shift-click to select contiguous mono busses in the Name column.
 - Command-click (Mac) or Control-click (Windows) to select noncontiguous mono busses in the Name column.
- 2 Option-Shift-click (Mac) or Alt-Shift-click (Windows) a mono bus indicator and select the channel from the pop-up menu.

To assign ascending (cascading) channels to all mono busses mapped to a multichannel output:

- Command-Option-click (Mac) or Control-Alt-click (Windows) the mono bus indicator of the top-most mono bus and select the first channel from the pop-up menu.

To assign ascending (cascading) channels to all selected mono busses mapped to a multichannel output:

- 1 Do one of the following:
 - Shift-click to select contiguous mono busses in the Name column.
 - Command-click (Mac) or Control-click (Windows) to select noncontiguous mono busses in the Name column.
- 2 Command-Option-Shift-click (Mac) or Control-Alt-Shift-click (Windows) the mono bus indicator of the top-most mono bus and select the first channel from the pop-up menu.

Resetting Busses

You can reset the number of available internal mix busses in your session to match your system's full capabilities by reverting to the default bus configuration.



Pro Tools creates 128 (out of 256 possible) internal busses by default.

To revert to the default bus configuration for your system:

- 1 Open the I/O Setup.
- 2 Click the Bus tab in the upper left.
- 3 From the pop-up menu to the right of the Default button, select one of the following:
 - All Busses
 - Output Busses
 - Internal Busses
- 4 Click Default.



Resetting busses to the default setting will rename all busses to their default name (Bus 1–2, Bus 3–4, and so on).

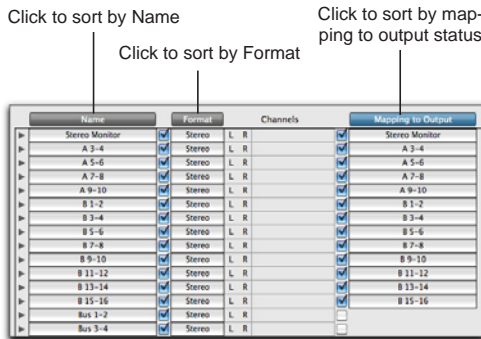
- 5 Click OK to save changes and close the I/O Setup.

Active Busses

The Bus page of the I/O Setup displays the number of active internal mix busses. If the number of active busses exceeds the number of available busses (256), the display turns red. Delete or deactivate any active busses in excess of the available number of busses to be able close the I/O Setup and save your settings.

Sorting Bus Paths

The Bus page provide controls to sort busses by name (ascending or descending), format (ascending or descending), or by mapped to output status (ascending only).



Sorting bus paths in the I/O Setup

To sort bus paths by Name:

- 1 In the Bus page, click the Name column header.
- 2 Click the Name column header again to toggle between ascending and descending sort order.

To sort bus paths by Format:

- 1 In the Bus page, click the Format column header.
- 2 Click the Format column header again to toggle between ascending and descending sort order.

To sort bus paths by Mapping To Output status:

- In the Bus page, click the Mapping To Output column header.

Factory I/O Settings

Pro Tools provides factory I/O settings for stereo and surround mixing, and are automatically installed with Pro Tools. These settings provide new sessions with generic path and sub-paths for either mixing format.

Factory I/O settings are available in the I/O Settings pop-up menu of the Quick Start or New Session dialog.

Stereo Mix Settings

This Stereo Mix setting creates the maximum number of stereo paths, as determined by the available system's I/O Setup and hardware configuration.



Using the "Stereo Mix" settings file has the same effect as clicking Default for every individual tab in I/O Settings. See "Restoring Default Paths and Path Names" on page 109.

Surround Mix Settings

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

The Surround Mix setting provides additional, surround-specific Output and Bus settings files.



See Chapter 46, "Pro Tools Setup for Surround."

I/O Settings Files

I/O settings files (.pio files) provide default path configurations for new sessions. I/O settings can be imported and exported for use with sessions shared between systems. I/O settings files are also available in the I/O Settings pop-up menu in the Quick Start and New Session dialogs.

For I/O settings files to be available in the Quick Start or New Session dialogs, I/O settings files must be saved to the IO Settings folder in the following locations:

Mac Applications/Avid/Pro Tools/IO Settings

Windows Program Files/Common
Files/Avid\DAE\IO Settings

Last Used I/O Settings

If any changes are made to the I/O Setup, these changes are automatically saved to the IO Settings folder as the Last Used settings file when the I/O Setup is closed (by clicking OK).

Last Used settings are available in the I/O Settings pop-up menu in the Quick Start or New Session dialog, or when importing I/O Settings in the I/O Setup.

Custom I/O Settings

Custom I/O Settings files can be created by changing I/O Setup settings (see “Customizing I/O Settings” on page 100), and then exporting the settings. These I/O settings can then be restored by importing them into a system.

This lets you save settings for different projects, import settings to reconfigure the I/O Setup, and manage path definitions and signal routing setups.

Importing I/O Settings

I/O Settings can be imported before or after you open a session. I/O Settings are only imported for the current page of the I/O Setup. For example, if you are viewing the Output page and import I/O Settings, only the settings for the Output page are imported. This helps to avoid overwriting your custom I/O Settings on other pages.

When you import I/O Settings, you can choose to delete any unused path definitions before importing the new paths, or leave unused path definitions intact and add the new paths to the current I/O Setup configuration.



You can also import I/O paths and path names, as well as other session data, from a different session by using the Import Session Data command (File > Import > Session Data). For information, see “Importing Session Data” on page 356.

To import I/O Settings:

- 1 Click the tab for the page of the I/O Setup for which you want to import settings.

- 2 Click Import Settings.



Option-click (Mac) or Alt-click (Windows) the Import Settings button to import settings to all pages of I/O Setup.

- 3 Select an I/O settings file in the Import Settings dialog and click Import.

- 4 A dialog appears asking whether you want to delete existing paths. Do one of the following:

- Click Yes to remove any unused paths and add the imported paths to the current I/O Setup configuration.
- Click No to add the imported paths to the current I/O Setup configuration.

If the import results in overlapping paths, the new paths will appear in the I/O Setup as Inactive. See “Making Paths Active or Inactive” on page 112.

After importing I/O Settings, you can then reassign path routing definitions in the I/O Setup by remapping, renaming, and deleting paths. See “Pro Tools Signal Paths” on page 90.

Exporting I/O Settings

When you export I/O settings, all pages of the I/O Setup are exported.

To export and save an I/O Setup configuration as a custom I/O Settings file:

- 1 Configure the I/O Setup settings.
- 2 Click Export Settings.
- 3 Name and save the settings file. The settings file is appended with “.pio” to distinguish it as an I/O settings file.



To start sessions with a blank or empty I/O Setup, you can create and export an I/O Settings file in which all definitions have been deleted.

Session Interchange

When exchanging a session between Pro Tools systems, you may need to reconfigure the session’s I/O settings. This will depend on system ID, path names and path format, as well as on the Pro Tools versions of each system on which the session is transferred.

Path Names and Automatic Output Bus Remapping

A *system ID* is created and saved in a session for every computer the session is opened on (using the computer’s MAC address). If Pro Tools finds a matching system ID when opening a session, output paths are restored and no reconfiguration is necessary.

When a Pro Tools session is opened on a system for the first time, Pro Tools attempts to automatically remap output busses.

If Pro Tools does not find a matching system ID, Pro Tools attempts to remap output busses according to the following criteria (in order):

Path Name and Format Path names must be exactly the same, and of the same format. Use the suggested path naming schemes (see “Recommended Output Path Naming Schemes” on page 110).

Path Format Only If matching path names are not found, Pro Tools remaps paths to existing paths of the same format (channel width).

Any output bus path that cannot be automatically remapped is opened as Inactive. You must manually remap those paths to an active output path.

Pro Tools Versions and Session Interchange


When exchanging a session between systems with different versions of Pro Tools software (such as your Pro Tools 10.0 system and a colleague's Pro Tools 7.x system), you can use the following to maintain paths and signal routing.

Pro Tools 8.1 and Higher

When exchanging sessions among systems running Pro Tools 8.1 or higher, it is generally recommended that the Sessions Overwrite Current I/O Setup When Opened option be disabled. This maintains any system IO settings when opening a session from another system (see “Sessions Overwrite Current I/O Setup When Opened” on page 100).


Pro Tools 8.0.x and Lower

When exchanging sessions with systems running lower versions of Pro Tools, it is generally recommended that the Sessions Overwrite Current I/O Setup When Opened option be enabled (see “Sessions Overwrite Current I/O Setup When Opened” on page 100). In this case, any custom settings saved with the session that do *not* match your system may need to be reconfigured manually in the I/O Setup to match your current studio setup.

 *If you created a backup of your I/O settings, you can import settings after opening the session (see “Importing I/O Settings” on page 119).*

Opening Older Sessions in Pro Tools 8.1 and Higher

When opening sessions created in Pro Tools 8.0.x and lower in Pro Tools 8.1 or higher, output paths from the legacy session are re-created as output buses. If the Sessions Overwrite Current I/O Setup When Opened option is enabled, the output buses are mapped to session output paths.

 *If your hardware configuration has changed, you may need to manually reconfigure output assignments in the Grid on the Output page of the IO Setup. See “Assigning Paths to Hardware I/O” on page 113.*

Path Order and Overlapping Output Paths

When exchanging sessions between Pro Tools 8.1 or higher and Pro Tools 8.0.x and lower, output paths and sub-paths are changed as follows, depending on the order in which they appear in the I/O Setups.

- ◆ If a session created in Pro Tools 8.1 or higher contains overlapping paths with a larger path created above smaller paths in the I/O Setup, the smaller paths are converted to sub-paths of the larger path when the session is opened in Pro Tools 8.0.x and lower.
- ◆ If a session created in Pro Tools 8.1 or higher contains overlapping paths where a smaller path appears above a larger path in the I/O Setup, the larger path will be made inactive when the session is opened in Pro Tools 8.0.x and lower.

Show Last Saved Setup and Show Current Setup

When a session is opened that contains path definitions for unavailable I/O interfaces, the I/O Setup lists those paths in italics.

Clicking the Show Last Saved Setup button displays the audio interfaces used in the original session. This temporary display lets you check the last saved I/O configuration for reference while configuring the I/O settings for your system.

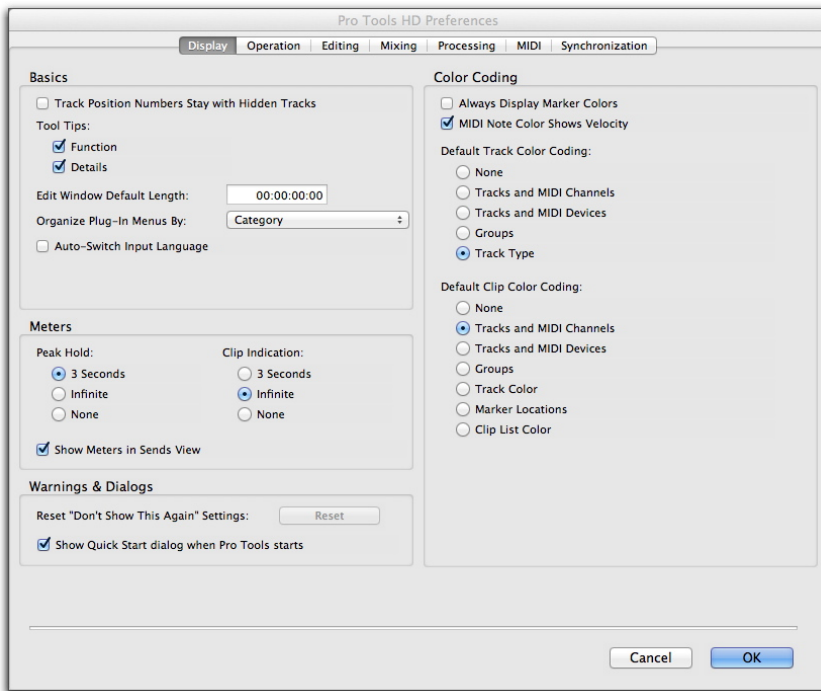
Once a session has been opened with unavailable I/O retained, you can then reassign tracks to available I/O paths.

Chapter 8: Preferences

The settings in the Pro Tools Preferences define how Pro Tools features work. The Preferences dialog has several tabbed pages in which you can specify your preferred settings.

To change Pro Tools preferences:

- 1 Choose Setup > Preferences.
- 2 Click the tab for the page that has preferences you want to change.
- 3 Change preferences.
- 4 Click OK to save your changes and close the Preferences dialog.



Pro Tools Preferences on a Pro Tools|HD system (Display Preferences page shown)

Global and Local Preferences

Pro Tools preferences are either *global* (system-wide) or *local* (for the current session only).

Global (System-Wide) Preferences Global preferences are applied to all sessions. These preferences become the default preferences for any existing sessions that you subsequently open or any new sessions that are created.

Local (Current Session) Preferences Local preferences are applied to the current session (if one is open). Local preferences are not applied to older sessions that are subsequently opened.

Preferences and New Sessions

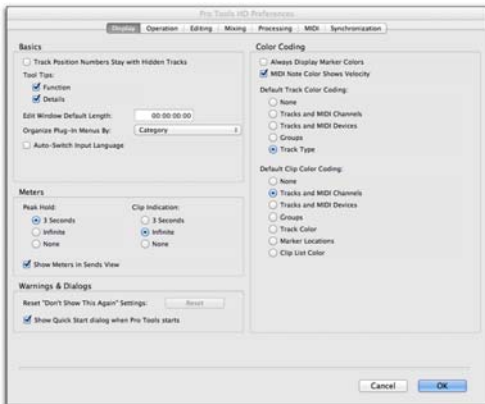
New sessions use global preference settings, plus the most recent local preference settings. The most recent local settings refer to the last open session (unless subsequent changes were made in the Preferences from the application window).

Local (Current Session) Preferences List

All Preferences are global, except for the following, which are local:

- Display Preferences
 - Edit Window Default Length
 - Always Display Marker Colors
 - Default Track Color Coding options
 - Default Clip Color Coding options
- Operation Preferences
 - Custom Shuttle Lock Speed
 - Back/Forward Amount (Pro Tools HD and Pro Tools with Complete Production Toolkit only)
 - PEC/Direct Style Input Monitoring (Pro Tools HD and Pro Tools with Complete Production Toolkit only)
- DestructivePunch File Length (Pro Tools HD and Pro Tools with Complete Production Toolkit only)
- Clip Auto Fade In/Out Length (Pro Tools HD and Complete Production Toolkit Only)
- Editing Preferences
 - None
- Mixing Preferences
 - Coalesce Trim Automation Options (Pro Tools HD and Pro Tools with Complete Production Toolkit only)
- Processing Preferences
 - Convert Imported “WAV” Files To AES31/BroadcastWave
- MIDI Preferences
 - Play MIDI Notes When Editing
 - Display Events as Modified by Real-Time Properties
 - Automatically Create Click Track in New Sessions
 - Default Thru Instrument
 - Pencil Tool Resolution When Drawing Controller Data
 - Delay for External Devices Options (Pro Tools HD and Pro Tools with Complete Production Toolkit only)
- Synchronization Preferences
 - None

Display Preferences



Basics Section

Track Position Numbers Stay with Hidden Tracks When selected, tracks keep their track numbers even when hidden. When not selected, numbers are only assigned to tracks that are shown. In this case, shown tracks are then numbered sequentially, and hidden tracks are not numbered.

Tool Tips Display Options

Function Configures Tool Tips to show the basic function of the item.

Details Configures Tool Tips to show the complete form of an abbreviated name or item (such as a track name). Details view can also show the hidden or abbreviated value of parameters, as well as input and output assignments.

Edit Window Default Length

This preference sets a default length for the Edit window in hours, minutes, seconds, and frames (Pro Tools HD and Pro Tools with Complete Production Toolkit only). This is useful if you want to assemble a session of a particular length or leave extra room to expand the Edit window's work area in your session. The maximum length is 24 hours. For best scrollbar sensitivity, set the length to slightly longer (a minute or more) than the total session or song length.

“Organize Plug-In Menus By” Options

These options customize how plug-in menus are organized in the Insert selector or Plug-In selector.

Flat List Organizes plug-ins in a single list, in alphabetical order.

Category Organizes plug-ins by process category (such as EQ, Dynamics, and Delay), with individual plug-ins listed in the category submenus. Plug-Ins that do not fit into a standard category (such as the Signal Generator), or third-party plug-ins that have not had a category designated by their developers, appear in the Other category. Plug-Ins can appear in more than one category.

Manufacturer Organizes plug-ins by their manufacturer (such as Bomb Factory, Focusrite, or TL Labs), with individual plug-ins listed in the manufacturer submenus. Plug-Ins that do not have a Manufacturer defined will appear in the “Other” manufacturer folder.

Category and Manufacturer Organizes plug-ins in two levels of menus. The top menu display plug-ins by process category (such as EQ, Dynamics, and Delay), with individual plug-ins listed in the category submenus. The bottom menu display plug-ins by manufacturer (such as Bomb Factory, Focusrite, or TL Labs), with individual plug-ins listed in the manufacturer submenus.

Language Options (Windows Only)

You must have Administrator privileges for the Pro Tools application Properties to change these options.

Language Sets the language to use in the Pro Tools application, independently of what language version of Windows is used.

Default Automatic Naming to English Causes automatically named session elements in a session to be named in English even when working with the Pro Tools application set to another language.

Auto-Switch Input Language

When the Auto-Switch Input Language option is enabled, the input language is switched automatically from English to the current OS input language when entering text. It automatically switches back to English for using Keyboard commands in Pro Tools. When disabled, English is used when entering text regardless of the current OS input language.

Meters Section

Peak Hold Options

These options determine how long the peak indicators on track meters stay lit after a peak is detected.

3 Seconds When selected, track meters display the last peak level for three seconds.

Infinite When selected, track meters display the last peak level until you click them to clear them.

None When selected, track meters do not hold the peak level.

Clip Indication Options

These options determine how long the clip indicators on plug-in, send, and track meters stay lit after a clip is detected.

3 Second Clip Hold When selected, meters display the last clip indication for three seconds.

Infinite Clip Hold When selected, meters display the last clip indications until you click them to clear them.

No Clip Hold When selected, meters do not hold the clip indication.

Show Meters in Sends View

When the Sends view is displaying individual send controls, you can select this option to show send level meters. Deselecting this option can help speed up screen redraws and processing.

Warnings and Dialogs

Reset “Don’t Show This Again” Settings If you have made any changes by selecting the Don’t Show This Again setting for any dialog in Pro Tools, you can click this Reset button to revert to the default settings.

Show Quick Start Dialog When Pro Tools Starts When selected, Pro Tools shows the Session Quick Start dialog on launch. Deselect this option if you do not want to see the Pro Tools Quick Start dialog on launch.

Color Coding

Always Display Marker Colors Lets you choose to view Marker colors in the Markers ruler, regardless of the settings you choose for Default Clip Color Coding.

MIDI Note Color Shows Velocity When enabled, MIDI notes display varying shades of the assigned track color in MIDI notes view in the Edit window and in MIDI Editor windows. Notes with high velocities are darker and notes with lower velocities are lighter.

Default Track Color Coding Options

These color coding options determine the default color coding assignment for tracks in the Edit and Mix windows. The options are:

None Turns off color assignment for tracks.

Tracks and MIDI Channels Assigns a color to each track in the Mix or Edit window according to its voice or MIDI channel assignment.

Tracks and MIDI Devices Assigns a color to each track in the Mix or Edit window according to its voice assignment or MIDI device assignment.

Groups Assigns a color to each track according to its Group ID. If groups are suspended using the Suspend Groups command, the tracks color bars are not shown.

Track Type Assigns a color to each track according to its type (audio, Auxiliary Input, Master Fader, VCA Master, MIDI, Instrument, or Video).

Default Clip Color Coding Options

These color coding options determine the default color coding assignment for tracks, Marker Locations, and clips residing in the track playlist and Clip List. The options are:

None Turns off color assignment for clips. Clips are drawn with black waveform or MIDI notes on a light gray background.

Tracks and MIDI Channels Assigns a color to each clip in the Edit window according to its voice or MIDI channel assignment.

Tracks and MIDI Devices Assigns a color to each clip in the Edit window according to its voice assignment or MIDI device assignment.

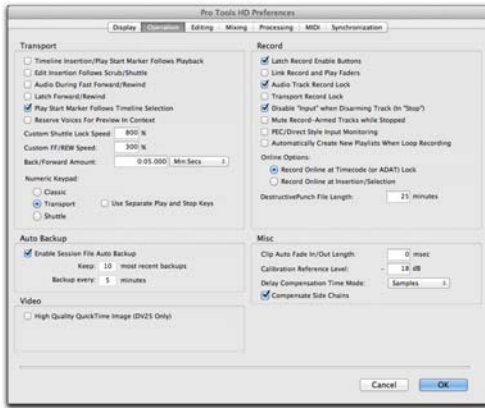
Groups Assigns a color to each clip according to the Group ID of its track. If groups are suspended using the Suspend Groups command, all clips display black waveforms or MIDI notes on a light gray background.

Track Color Assigns a clip color based on the color assigned to the track.

Marker Locations Assigns a unique color to each marker area in the Marker ruler, including the area preceding the first marker.


Clip List Color Assigns a color to each clip based on its color in the Clip List.

Operation Preferences



Transport Section

Timeline Insertion/Play Start Marker Follows Playback When selected, the Timeline Insertion and the Play Start Marker both move to the point in the Timeline where playback stops. When deselected, the Timeline Insertion and Play Start Marker do not follow playback, but return to the location where playback began.

 Press **Start+N (Windows)** or **Control+N (Mac)** to toggle the Timeline Insertion/Play Start Marker Follows Playback preference on and off.

Edit Insertion Follows Scrub/Shuttle When selected, the edit cursor automatically locates to the point where scrubbing stops.


Audio During Fast Forward/Rewind When selected, audio is audible during fast forward or rewind.

Latch Forward/Rewind When selected, fast forward and rewind latch and continue until you press Stop, Play, Return To Zero, or Go To End on the Transport. When disabled, the Fast Forward and Rewind only last as long as you hold the mouse after clicking either button on the Transport (or hold the corresponding switch on a Control Surface).

Play Start Marker Follows Timeline Selection When enabled, the Play Start Marker snaps to the Timeline Selection In Point when you move the Timeline Selection, draw a new Timeline Selection, or adjust the Timeline Selection Start. When disabled, the Play Start Marker doesn't move with the Timeline selection.

Reserve Voices for Preview in Context (Pro Tools|HD Systems Only) When enabled, Pro Tools reserves the appropriate number of voices for preview in context (previewing audio files in DigiBase during session playback). The number of available voices is reduced by the channel width of the selected audition paths on the Output page of the I/O Setup window. For example, if the number of playback voices is set to 48 in the Playback Engine, and you have a stereo audition path selected in the I/O Setup, only 46 voices will be available for tracks. If you have a 5.1 audition path, only 42 voices will be available. When this option is disabled, you will not be able to preview in context if there are not enough available voices.

Custom Shuttle Lock Speed Sets the highest fast-forward Shuttle Lock speed (key 9) for Shuttle Lock modes (Classic or Transport). The range for this setting is 50–800%.

 For more information, see “Custom Shuttle Lock Speed” on page 561.

Back/Forward Amount (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) Sets the default length of Back, Back and Play, Forward and Forward and Play. The timebase of the Back/Forward Amount settings follows the Main Time Scale by default, or you can deselect the Follow Main Time Scale option and select another timebase format: Bars|Beats, Min:Sec, Timecode, Feet+Frames, or Samples.

Numeric Keypad Mode

Numeric Keypad mode determines how the numeric keypad functions. You can always use the numeric keypad to select and enter values in the Event Edit Area, Edit Selection indicators, Main and Sub Counters, and Transport fields.

Classic Selects a Shuttle Lock mode that emulates the way Pro Tools worked in versions lower than 5.0. With the Numeric Keypad mode set to Classic, you can play up to two tracks of audio in Shuttle Lock mode. Press the Start key (Windows) or Control (Mac), followed by 0–9 for different play speeds. Press Plus (+) or Minus (–) to reverse direction. Recall Memory Locations by typing the Memory Location number, followed by Period (.).

Transport Selects a Shuttle Lock mode that lets you set a number of record and play functions, and also operate the Transport from the numeric keypad. With the Numeric Keypad mode set to Transport, you can play up to two tracks of audio in Shuttle Lock mode. Press the Start key (Windows) or Control (Mac), followed by 0–9 for different play speeds. Press Plus (+) or Minus (–) to reverse direction. Recall Memory Locations by typing Period (.), the Memory Location number, and Period (.) again.



To customize the highest fast-forward Shuttle Lock speed, see “Custom Shuttle Lock Speed” on page 561.

Shuttle (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) Selects a type of shuttling different from that of Shuttle Lock mode. With the Numeric Keypad mode set to Shuttle, playback is triggered by pressing and holding the keys on the numeric keypad—playback stops once the keys are released. Various playback speeds are available in both forward and reverse. You can also recall Memory Locations by typing Period (.), the Memory Location number, and Period (.) again.

Use Separate Play and Stop Keys

When enabled, this option lets you start playback with the Enter key and stop playback with the 0 key on the numeric keypad. This is useful for quickly starting and stopping playback when auditioning loop transitions. The Use Separate Play and Stop Keys option is only available in Transport Numeric Keypad mode.



When this option is enabled, it overrides using the Enter key to add Memory Location markers. Instead, press Period (.) and then Enter on the numeric keypad to add a Memory Location marker.

Auto Backup Section

Enable Session File Auto Backup When selected, Pro Tools automatically saves backups of your Pro Tools session file while you work. Backups are saved to in the Session File Backups folder in your session folder.

Keep Specifies the total number of incremental backups that are kept.

Backup Every Specifies how often the session is saved.

Video Section

High Quality QuickTime Image (DV25 Only)

When enabled, Pro Tools decompresses both fields of each interlaced frame of QuickTime video. When not enabled, Pro Tools only decompresses one field of each frame for “half-res” QuickTime playback.

When viewing a QuickTime movie in the Pro Tools Video window, select this option to display the movie at the highest possible resolution. For interlaced video that was transcoded from a progressive source, enable this option for a crisper image. Deselecting this option can help improve performance if your system experiences problems playing back a session with QuickTime video.

Avid Video Errors Stop Playback (Pro Tools HD with Avid Video Engine Only)

When selected, Pro Tools automatically stops playback of audio and video if a single frame of video is dropped.

When not selected, Pro Tools continues playback of audio even if frames are dropped. In most cases, video playback will recover within a few frames and continue playing audio and video in sync.

Avid Video NTSC Has Setup (NTSC-J) (Pro Tools HD with Avid Video Engine Only)

This preference lets you adjust the level of NTSC video black output between 7.5 IRE (standard) or 0 IRE. When this option is selected, output level is 0 IRE.

Record Section

Latch Record Enable Buttons When selected, multiple audio tracks can be record-enabled. When not selected, multiple audio tracks cannot be record-enabled. Record-enabling an audio track takes all other audio tracks out of record-enabled mode.

Link Record and Play Faders When selected, Pro Tools does not remember separate fader levels for tracks when they are record-enabled, allowing you to maintain the same monitoring level for tracks during recording and playback.

Audio Track RecordLock (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) This option configures Pro Tools tracks to either emulate a digital dubber, or to maintain legacy behavior for track record status.

- When selected, the record-enabled audio tracks remain record-enabled when playback or recording stops.
- When not selected, record-enabled audio tracks are taken out of record enable when Pro Tools is stopped. This prevents tracks from remaining armed from pass to pass, emulating track record behavior of a digital dubber.

Transport RecordLock (Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

This option lets the Transport Record (the Record button in the Transport controls) be configured to either emulate a digital dubber, or to maintain legacy behavior for the Transport master Record.

- When selected, the Transport Record remains armed when playback or recording stops. This saves having to re-arm the Transport between takes, emulating digital dubber behavior.
- When not selected, the Transport Record disarms when Pro Tools is manually stopped or stops due to a loss of timecode. This replicates standard Pro Tools recording behavior.

The Transport RecordLock option is automatically disabled and grayed out when Destructive Record mode is enabled.

Disable “Input” When Disarming Track (In “Stop”) (Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

For flexibility, TrackInput monitoring can be customized to remain selected regardless of track record status, or to automatically switch to Auto Input monitoring after a recording pass. This lets you optimize monitoring for a typical dubbing workflow (in which you might want tracks to remain in Input Only mode until explicitly switched to Auto Input monitoring) or a typical music tracking workflow (in which leaving a track in Input Only monitoring mode after recording can result in accidental double-monitoring).

- When selected, taking an audio track out of record enable (any mode) takes it out of Input Only mode, regardless of the global monitor mode, and switches it to monitor audio from disk only.
- When not selected, audio tracks remain in Input Only monitoring mode until explicitly switched to Auto Input monitoring.

Mute Record-Armed Tracks While Stopped (Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

This setting determines monitor status of record-armed tracks.

- When selected, Pro Tools mutes all record-enabled tracks when the transport is stopped. Input can still be monitored while stopped using the TrackInput Monitor button.
- When not selected, Pro Tools does not mute audio input on record-enabled tracks when the transport is stopped.

PEC/Direct Style Input Monitoring (Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

This option changes the way the TrackInput monitoring mode is indicated on-screen (and on supported control surfaces) to emulate “PEC” (playback) and “Direct” (input/bus) indication on some large format consoles.

- When not selected, the TrackInput button shows the letter “I.” The button remains gray to indicate Auto Input mode and lights green to indicate Input Only mode.
- When selected, the TrackInput button remains gray and shows the letter “D” to indicate Input Only mode (“Direct”); it lights green and shows the letter “P” to indicate Auto Input mode (“Pec” or playback).

Automatically Create New Playlists When Loop Recording

When selected, copies loop recorded alternate takes to new playlists in the track. This is especially useful to prepare for track compositing in Playlists view after loop recording multiple alternate takes.

Online Options

Record Online at Timecode (or ADAT)

Lock When selected, online recording begins as soon as Pro Tools receives and locks to incoming timecode.

Record Online at Insertion/Selection When selected, online recording begins at the edit cursor location. Recording continues until Pro Tools stops receiving timecode. If you make a selection, Pro Tools records online for the length of the selection.

DestructivePunch File Length (Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

This preference sets the duration of consolidated audio files when preparing tracks for Destructive-Punch mode. The default value for this setting is 25 minutes.

Misc (Miscellaneous) Section

Clip Auto Fade In/Out Length (Pro Tools HD and Complete Production Toolkit Only) Sets a default length for fade-ins and fade-outs automatically applied to clip boundaries. Using automatic fade-ins and fade-outs saves you the trouble of editing to zero-crossings or creating numerous rendered fades in order to eliminate clicks or pops in playback. Autofades are not written to disk. Value range is from 0–10 ms for the Auto Clip Fade In/Out Length setting. A value of zero means that no auto-fading will occur. The Auto Fade value is saved with the session, and is automatically applied to all free-standing clip boundaries until you change it.

Calibration Reference Level (Avid HDX, Pro Tools|HD, and HD Native Systems Only) Sets a default calibration reference level in dB when Pro Tools is in Calibration mode. For audio interfaces that have trims (such as the HD I/O), see the interface's guide for calibration instructions.

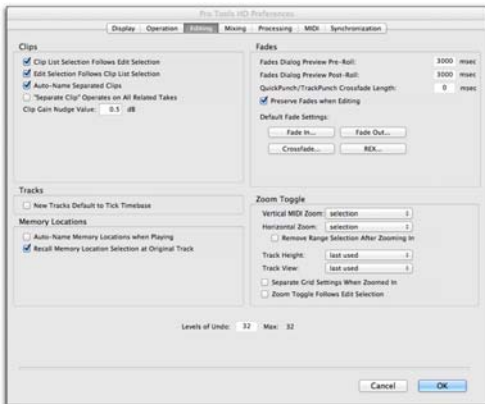


If your system includes one or more EUCON controllers, be sure to disable “Auto-bank to selected track” in EuControl software before enabling Pro Tools Calibration Mode to ensure that faders remain silent. To make sure “Auto-bank to select track” is not enabled, open the EuControl Settings window, click to go to the General tab, and verify the setting is not enabled. If necessary, click to disable “Auto-bank to selected track.” After exiting Calibration Mode, be sure to re-enable the “Auto-bank to selected track” setting (if necessary).

Delay Compensation Time Mode When Delay Compensation is enabled (Options > Delay Compensation), this option lets you choose whether information in the Delay Manager is displayed in milliseconds or samples.

Compensate Side Chains (Avid HDX Systems Only) When Delay Compensation is enabled (Options > Delay Compensation), this option applies Delay Compensation to plug-in sidechain signals.

Editing Preferences



Clips Section

Clip List Selection Follows Edit

Selection When selected, selecting a clip in a track also selects it in the Clip List.

Edit Selection Follows Clip List

Selection When selected, selecting a clip in the Clip List causes Pro Tools to highlight that clip's occurrence in a track.

Auto-Name Separated Clips When selected, Pro Tools automatically names newly separated clips by appending a number to the clip's name.

"Separate Clip" Operates On All Related Takes When selected, editing a clip with the Separate Clip command also affects all other related takes (recording passes) with the same User Time Stamp. This option helps you compare different sections from a group of related takes.

Clip Gain Nudge Value This setting specifies the amount (from 0.1 dB to 6.0 dB) by which clip gain settings are adjusted when nudging clip gain.

Tracks Section

New Tracks Default To Tick Timebase When selected, all new tracks default to ticks. When deselected, audio, Auxiliary Input, Master Fader, and VCA (Pro Tools HD only) tracks default to samples.

Memory Locations Section

Auto-Name Memory Locations When

Playing When selected, Pro Tools gives new Memory Locations default names based on their time location in the session. The time units currently chosen in the View menu determine the units for the names.

Recall Memory Location at Original Track When selected, Memory Locations that recall a selection also recall the track in which the selection was made.

Fades Section

Crossfade Preview Pre-Roll This setting specifies the amount of pre-roll to be added when you are auditioning crossfades in the Fades dialog.

Crossfade Preview Post-Roll This setting specifies the amount of post-roll to be added when you are auditioning crossfades in the Fades dialog.

QuickPunch/TrackPunch Crossfade Length

Specifies a default length for crossfades created by QuickPunch or TrackPunch (Pro Tools HD and Pro Tools with Complete Production Toolkit only) recordings. Crossfades occur before the punch in and after the punch out.

Preserve Fades when Editing This option preserves fade-ins and fade outs, and converts separated crossfades into corresponding fade-ins and fade-outs.

Default Fade Settings

Fade In Selects the default envelope shape for fade-ins when using the Smart Tool.

Fade Out Selects the default envelope shape for fade-outs when using the Smart Tool.

Crossfade Selects the default envelope shape for crossfades when using the Smart Tool.



To apply a Fade In, Fade Out, or Crossfade to an Edit selection using the Default Fade settings, and without opening the Fades dialog, press Control+Shift+F (Windows) or Command+Control+F (Mac).

REX Selects the default envelope shape for fades and crossfades between clips (“slices”) in imported REX files.

Zoom Toggle Section

Vertical Zoom Selects either Selection or Last Used for the Zoom Toggle Vertical Zoom setting.

Horizontal Zoom Selects either Selection or Last Used for the Zoom Toggle Horizontal Zoom setting.

Remove Range Selection After Zooming

In When selected, the current Edit selection collapses into an insertion point after zoom toggling in. Zoom toggling back out reverts to the previous selection.

Track Height Selects Last Used, Medium, Large, Extreme, or Fit To Window for the Zoom Toggle Track Height setting.

Track View Selects Waveform/Notes, Warp/Notes, Last Used, or No Change for the Zoom Toggle Track View setting.

Separate Grid Settings When Zoomed In When selected, the Grid setting stored with Zoom toggle is recalled when zoom toggling in. When this option is deselected, the same (current) grid setting is used whether zoom toggling in or out.

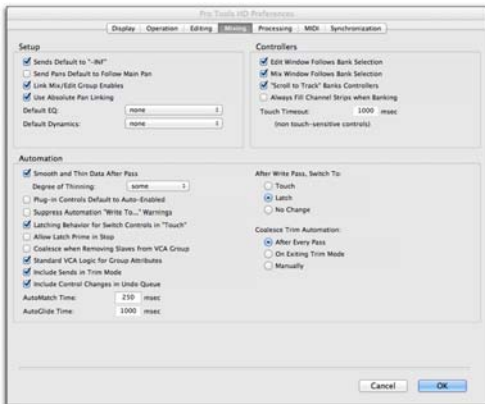
Zoom Toggle Follows Edit Selection When selected, zoom toggle automatically follows the current Edit selection. When disabled, changing the Edit selection has no affect on the currently toggled-in track.

Levels of Undo

This preference sets the maximum number of actions that can be undone with the multiple undo feature. Setting this to a lower number can speed up the performance of slower computers.

Pro Tools supports up to 32 levels of Undo.

Mixing Preferences



Setup Section

Sends Default to -INF When selected, the initial fader level of newly-created sends is set to $-\infty$ (no audible signal level). When not selected, the initial fader level of newly-created sends is set to 0 dB.

Send Pans Default to Follow Main Pan When selected, newly created sends have Follow Main Pan turned on, so the Send Pan controls follow the pan controls of the track. When not selected, newly created sends have Follow Main Pan turned off.

Link Mix and Edit Group Enables When selected, this option links enabling and disabling of Mix and Edit Groups. For example, enabling Group A in the Mix Window automatically enables Group A in the Edit window.

Use Absolute Pan Linking (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) This option affects behavior of grouped pan controls.

- When selected, grouped pan controls do not maintain relative offsets when any of the grouped pan controls is adjusted. All grouped pan controls snap to the absolute value of the adjusted control.
- When not selected, grouped pan controls maintain relative offsets when any of the linked controls is adjusted.

Default EQ

This preference lets you choose any installed EQ plug-in as the default, which makes it available for quick assignment, both on-screen and on ICON worksurfaces (Pro Tools HD and Pro Tools with Complete Production Toolkit only). On-screen, the plug-in appears at the top of the Insert selector pop-up menu. On ICON worksurfaces, the plug-in appears first in the list of menu choices on the rotary encoders.

Default Dynamics

This preference lets you choose any installed Dynamics plug-in as the default, which makes it available for quick assignment, both on-screen and on ICON worksurfaces (Pro Tools HD and Pro Tools with Complete Production Toolkit only). On-screen, the plug-in appears at the top of the Insert selector pop-up menu. On ICON worksurfaces, the plug-in appears first in the list of menu choices on the rotary encoders.

Controllers Section

Edit Window Follows Bank Selection If you are using a supported control surface with Pro Tools, this option scrolls the Edit window to display the selected bank of tracks when you switch banks on the control surface, ensuring that the current bank is viewable on-screen.

Mix Window Follows Bank Selection If you are using a supported control surface with Pro Tools, this option scrolls the Mix window to display the selected bank of tracks when you switch banks on the control surface, ensuring that the current bank is viewable on-screen.

“Scroll to Track” Banks Controllers When using a control surface (such as D-Control or ProControl) you can select this option to bank control surface faders to a numbered track when using the Scroll to Track command.

Always Fill Channel Strips When Banking If you are using an ICON worksurface (Pro Tools HD and Pro Tools with Complete Production Toolkit only), or other supported control surface, you can select this option to maximize the number of channels displayed when banking. This setting optimizes the Bank commands to prevent the display of a small number of channels at the extremes of the surface.

Touch Timeout If you are writing automation in Touch mode and you stop moving a non-touch sensitive fader or encoder, Pro Tools continues to write automation for the Touch Timeout value.

After the Touch Timeout period, writing of automation stops and the automation data returns to its previous automation value at the rate specified in the AutoMatch Time setting.

Automation Section

Smooth and Thin Data After Pass When selected, Pro Tools automatically smooths and then applies the specified amount of thinning to the automation data created in an automation pass.

Degree of Thinning Specifies the amount of thinning performed on automation data when you using the Thin Automation command, or if you have selected the Smooth and Thin Data After Pass option.

Plug-In Controls Default to Auto-Enabled When selected, all applicable controls of newly added plug-ins are enabled for automation. When not selected, the controls of newly added plug-ins must be manually enabled for automation.

Suppress Automation “Write To” Warnings (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) When selected, Pro Tools suppresses the warnings that appear after invoking any of the Write Automation To Start, Selection, End, or Punch commands and then stopping the transport.

Latching Behavior for Switch Controls in “Touch” This option determines the behavior of switch-type controls (such as mute or plug-in bypass) when writing automation in Touch mode.

- When selected, controls in Touch mode will latch in their current state. If an existing breakpoint is encountered, writing of automation stops. If the transport is stopped while writing, the control will AutoMatch to the underlying value.
- When not selected, controls in Touch mode will not latch.

Allow Latch Prime in Stop (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) When selected and any tracks are in Latch mode, any automation-enabled controls on those tracks can be set to new values while the transport is stopped by touching or moving controls, to prepare for the next automation pass.

Coalesce when Removing Slaves from VCA Group (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) This option determines the behavior when removing slave tracks from a VCA-controlled group.

- When selected, any automation on the VCA Master is automatically coalesced (without confirmation) to its slave tracks when the tracks are removed from the group.
- When not selected, a confirmation dialog lets you choose whether or not to coalesce the VCA Master automation to the slave tracks.

Standard VCA Logic for Group Attributes (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) This option determines which Mix group attributes may be selected in the Group dialog when the group is assigned to a VCA Master.

- When selected, the Main Volume, Mute, Solo, Record Enable, and Input Monitoring controls on slave tracks follow the VCA Master only and are not available to be independently linked. (This emulates the behavior of analog console VCA masters.)
- When deselected, the Main Volume, Mute, Solo, Record Enable, and Input Monitoring controls follow the VCA Master, but also remain available for independent linking with groups.

Include Sends in Trim Mode (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) This option determines the Trim status of Send faders when a track is put in Trim mode.

- When selected, Send faders go into Trim mode along with the Main Volume fader.
- When deselected, the Main Volume fader goes into Trim mode, but the Send fader stays in the corresponding standard Automation mode.

Include Control Changes in Undo Queue This option determines whether certain mixer control changes, such as moving a fader or pan control, are entered into the Undo queue.

- When selected, mixer control changes appear in the Undo queue, and are undone if any prior operation is undone.
- When deselected, mixer control changes will not appear in the undo queue, allowing you to undo other types of operations without losing the current mixer settings.

Any set to default operations that affect mixer controls will be entered into the Undo queue.

AutoMatch Time If you are writing automation in Touch mode, when you release a fader or control, writing of automation stops and the automation data returns to its previous value. The rate of return to the previous value is the AutoMatch Time.

AutoGlide Time (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) Specifies how quickly Pro Tools transitions (glides) from one automation value to another, when AutoGlide mode is used.

After Write Pass, Switch To Options

These options select the Automation mode that Pro Tools tracks automatically switches to after an automation pass in Write (or Write Trim) mode. Select one of the following options:

Touch Switches to Touch mode after an automation pass in Write (or Write Trim) mode.

Latch Switches to Latch mode after an automation pass in Write (or Write Trim) mode.

No Change Stays in Write mode after an automation pass in Write (or Write Trim) mode.

After an automation pass in Write Trim mode, tracks automatically switch to the Trim version of the specified setting.

Coalesce Trim Automation Options (Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

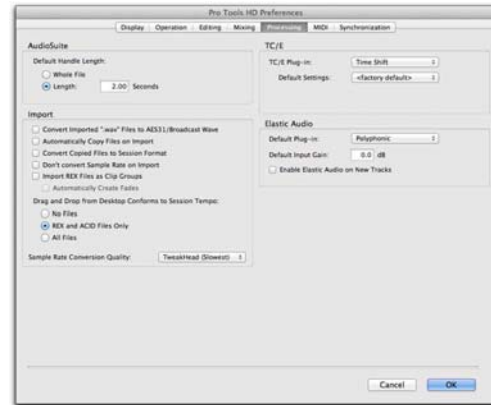
These options determine when Trim automation is committed to the main automation playlist on a track.

After Every Pass Sets Trim automation to coalesce when the transport is stopped at the end of each Trim automation pass. No Composite Playlist is indicated.

On Exiting Trim Mode Sets Trim Automation to coalesce on a track when the track is taken out of Trim mode. A Composite Playlist can be viewed before committing Trim moves.

Manually Trim Automation can be coalesced only with the Coalesce Trim Automation command. A Composite Playlist can be viewed before committing Trim moves.

Processing Preferences



AudioSuite Section

Default Handle Length

The Default Handle Length options let you set the default length for AudioSuite and clip gain handles.

Whole File When enabled, AudioSuite and clip gain rendering renders the whole file referenced by the selection or clip.

Length This setting lets you specify the default Handle Length (from 0.00 to 60.00 seconds) for AudioSuite and clip gain rendering. AudioSuite and clip gain rendering renders the selection plus any additional available audio up to the specified Handle Length.

Import Section

Convert Imported “WAV” Files To AES31/BroadcastWave When selected, this option applies to all newly imported WAV files, making them compliant with the AES31/EBU Broadcast standard.

Automatically Copy Files on Import When selected, all audio files that are imported by dragging and dropping are copied to the current session’s Audio Files folder, regardless of whether the files need to be converted to the current session’s file type, bit depth or sample rate. Additionally, when selected, the Copy from Source Media option is automatically enabled in the Import Session Data dialog. The Automatically Copy Files on Import preference does not affect the Import Audio command.

Convert Copied Files to Session Format When selected, files that have different file formats from the current session file format are copied and converted to the current session audio file format on import. For example, if the session file format is WAV and you import an AIF, the files is copied and converted to WAV on import. When this option is not selected, copied files retain their original format (unless that file format is incompatible with Pro Tools, in which case it must be converted).

Do Not Convert Sample Rate on Import When selected, files with different sample rates than the session sample rate are not automatically converted when imported into the session. This means that files with mis-matched sample rates playback at a different speed (and pitch transpositions than when they were originally recorded (or converted).

Import REX Files as Clip Groups When selected, REX files are imported as clip groups, all the underlying slices are imported as individual clips contained within the clip group. When this option is not selected, importing REX files into a session converts them to the session’s audio file format,

the individual slices are consolidated, and the slice information is used for Elastic Audio analysis. These files remain tick-based after import and conversion.

Automatically Create Fades When selected, crossfades are applied automatically to the sliced clips within clip groups created by importing REX files. If the Import REX Files as Clip Groups option is not selected, the Automatically Create Fades option is not available.

To change the default fade settings for REX files, click the REX button in the Default Fade Settings section on the Editing Preferences page.

Drag and Drop From Desktop Conforms to Session Tempo

The Drag and Drop From Desktop Conforms to Session Tempo options determine whether or not REX, ACID, and audio files are imported as tick-based Elastic Audio and conformed to the session tempo.

No Files When enabled, REX and ACID files, and all other audio files are not conformed to the session tempo when imported by drag and drop from Windows Explorer or the Mac Finder. They are imported as sample-based files and converted to the sessions audio file format.

REX and ACID Files Only When enabled, only REX and ACID files are conformed to the session tempo when imported by drag and drop from Windows Explorer or the Mac Finder. REX files are imported either as tick-based Elastic Audio or, if the Import REX Files as Clip Groups option is enabled, as tick-based clip groups.

All Files When enabled, all audio files (including REX and ACID files) imported by drag and drop from Windows Explorer or the Mac Finder are imported as tick-based Elastic Audio and conform to the session tempo.

Sample Rate Conversion Quality

The Sample Rate Conversion Quality pop-up menu lets you select the default sample rate conversion quality for importing audio files by drag and drop from any DigiBase browser, or Windows Explorer or Mac Finder. The higher the quality of sample rate conversion you select, the longer Pro Tools will take to process the audio file.

TC/E (Time Compression/Expansion) Section

TC/E Plug-In Lets you select the plug-in used for Time Compression and Expansion when you edit audio with the Time Compression/Expansion Trim tool. This Trim tool works by using Time Compression/Expansion to match an audio clip to the length of another clip, a tempo grid, a video scene, or other reference point. The Time Shift plug-in is selected by default.

Default Settings Specifies the default settings used by the chosen Time Compression/Expansion plug-in.

Elastic Audio Section

These preferences determine Elastic Audio usage and settings on new tracks, as well as for previewing and importing tick-based audio.

Default Plug-In Lets you select any Real-Time Elastic Audio plug-in as the default for previewing and importing Elastic Audio. The selected default Elastic Audio plug-in is also used when new tracks are created with the Enable Elastic Audio on New Tracks option enabled.

Default Input Gain Lets you attenuate the signal input to Elastic Audio plug-ins by 0 to -6 dB for preview and import. If you experience clipping due to Elastic Audio processing during preview or after import, you may want to set the Default Input Gain to slightly attenuate the audio signal input for Elastic Audio processing. This preference also applies to any audio imported to an Elastic Audio-enabled track.

The Elastic Properties window inherits the Default Input Gain setting. To apply further clip-based input gain attenuation for Elastic Audio processing, select the clip and adjust the Input Gain setting in the Elastic Properties window (see “Elastic Properties Window” on page 896).

Enable Elastic Audio on New Tracks When selected, new tracks are created with Elastic Audio enabled. The selected default Elastic Audio plug-in is used.



If the Enable Elastic Audio on New Tracks option is selected, you may want to also select the New Tracks Default to Tick Time-base option in the Editing Preferences page.

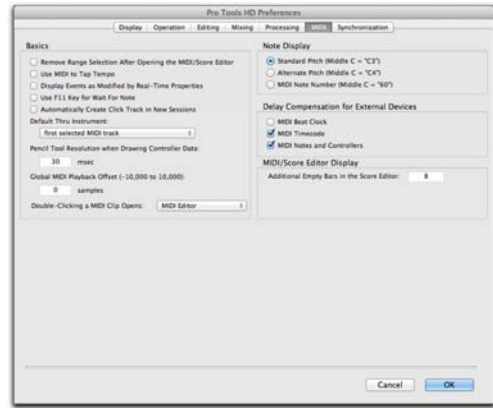
DSP Management Section (Avid HDX and Pro Tools|HD Systems Only)

These preferences determine DSP management behavior for converting DSP plug-ins to Native and also for the HEAT software option.

Open Unresourced DSP Plug-Ins as Native When this option is enabled, any DSP (AAX or TDM) plug-ins that exceed the available DSP processing are converted to Native (AAX or RTAS) format plug-ins wherever possible. When this option is disabled, any DSP plug-ins that exceed the available DSP processing are made inactive.

Enable HEAT in New Sessions (Avid HDX and Pro Tools|HD Only) When enabled, new sessions are created with HEAT enabled for all audio tracks. When disabled, HEAT is disabled in new sessions by default. This option is only available if the HEAT software option is installed. For more information, see the *HEAT Software Option Guide*.

MIDI Preferences



Basics Section

Remove Range Selection After Opening the MIDI/Score Editor When selected, the MIDI Editor and Score Editor open with no Edit selection. When this option is disabled, the MIDI Editor and Score Editor open with the current Edit selection intact.

Use MIDI to Tap Tempo When enabled, you can tap a MIDI keyboard to enter a new tempo value into a tempo field.

Display Events as Modified by Real-Time Properties When enabled, Pro Tools displays the effects of Real-Time Properties in the Edit, MIDI Editor, and Score Editor windows, and the MIDI Event List.

Use F11 Key for Wait for Note When enabled, pressing the F11 Function key puts MIDI recording in Wait for Note mode.

Automatically Create Click Track in New Sessions When enabled, Pro Tools automatically creates a new click track in new sessions.

Default Thru Instrument

This option lets you set the default MIDI Thru instrument. You can select a predefined device from your available MIDI instruments, or select First Selected MIDI Track to use the assigned MIDI output of the first selected MIDI or Instrument track. When multiple MIDI or Instrument tracks are selected, the instrument in the selected track that is closest to the top of the Edit window (or closest to the left edge of the Mix window) is used. Select None to only route MIDI Thru record enabled MIDI and Instrument tracks.

Pencil Tool Resolution When Drawing Controller Data

This option lets you set the default resolution for MIDI controller data created with the Pencil tool. Setting this to a lower resolution helps avoid creating controller data that is unnecessarily dense. The value range is from 1 to 100 milliseconds.

Global MIDI Playback Offset

This option lets you set an offset in samples to compensate for MIDI latency. Entering a value here has the same effect as setting an offset with the MIDI Track Offsets command. Offset values can be positive (later) or negative (earlier).

Double-Clicking a MIDI Clip Opens

This option lets you specify what happens when you double-click MIDI clips with the Grabber tool on MIDI and Instrument tracks in the Edit window.

MIDI Editor Opens the MIDI clip in a MIDI Editor window.

Score Editor Opens the MIDI clip in the Score Editor window.

MIDI Event List Opens the MIDI clip in the MIDI Event List.

Name Dialog Opens the Name dialog for the MIDI clip.

Note Display Options

These options set the reference for middle C as C3, C4, or MIDI note number 60.

Delay Compensation for External Devices Options

These options only apply when a Delay Compensation Engine is selected in the Playback Engine and Delay Compensation is enabled in Pro Tools. These options are distinct from the hardware offsets available for hardware inserts in the I/O Setup.

MIDI Timecode When selected, Pro Tools applies Delay Compensation to Pro Tools-generated MIDI Timecode (MTC). Enable this option when synchronizing video to Pro Tools using MTC.

MIDI Beat Clock When selected, Pro Tools applies Delay Compensation to Pro Tools-generated MIDI Beat Clock.

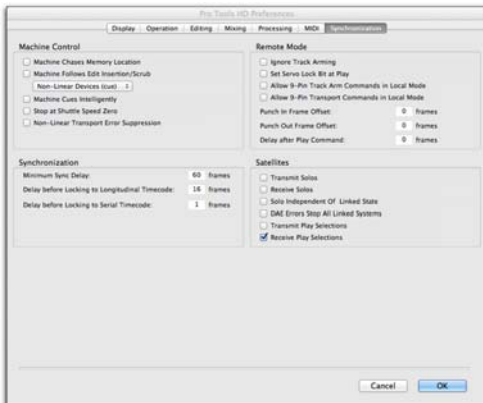
MIDI Notes and Controllers When selected, Pro Tools applies Delay Compensation to MIDI notes and MIDI controller data. This is useful when monitoring playback or when recording input from external MIDI devices.

MIDI/Score Editor Display

Additional Empty Bars in the Score Editor

This setting lets you specify the default number of empty bars that appear in the Score Editor window after the end of the last MIDI clip in the session.

Synchronization Preferences



Machine Control Section

Machine Chases Memory Location When selected, navigating to a specific location in a session with a Memory Location causes a connected transport to chase to that location.

Machine Follows Edit Insertion/Scrub When selected, navigating to a specific location in a session by moving the selection point or by scrubbing a track will cause a connected transport to chase to that location.

When the connected device is a linear device (such as a tape deck), select **Linear Devices** (jog) to set Pro Tools to send jog commands.

When the connected device is a non-linear device (such as a random-access video recorder or another Pro Tools system), select **Non-Linear Devices** (cue) to set Pro Tools to send cue commands.

Machine Cues Intelligently (Avid HDX, Pro Tools|HD, and HD Native Systems Only)

When selected, if you navigate to a cue point that is more than 10 seconds from the current location, Pro Tools will command a connected transport to fast wind to the new location at full speed to within 10 seconds of the cue point. Cueing will then slow to normal speed until the point is reached. This can significantly speed up tape cueing with certain video transports.

Stop at Shuttle Speed Zero (Avid HDX, Pro Tools|HD, and HD Native Systems Only)

Causes Pro Tools to send a Stop command whenever you stop shuttling. This is useful if you have a machine that requires an explicit stop command to park correctly.

Non-Linear Transport Error Suppression (Avid HDX, Pro Tools|HD, and HD Native Systems Only)

When Transport = Pro Tools, keeps Pro Tools from sending a Stop command when taken offline. This prevents Pro Tools from stopping any other 9-pin devices connected to the system.

Synchronization Section

Minimum Sync Delay Sets the initial amount of prime time (in frames) your system's devices need to achieve synchronization "lock." This amount varies for each device. Pro Tools lock up delay is set by entering a value for Minimum Sync Delay in the Synchronization page of the Preferences. The lowest value available is 15 frames. Find the shortest possible lock-up time that your equipment can operate at consistently, and set this as the Minimum Sync Delay. On systems using MachineControl, enabling the Use Serial Timecode option will make machines lock up much faster. (Serial timecode requires both a qualified synchronization peripheral and external devices to be locked to house video reference.)

Delay Before Locking to Longitudinal Timecode (Avid HDX, Pro Tools|HD, and HD Native Systems Only) Sets the amount of time (in frames) for Pro Tools to lock to incoming LTC. Use this option when locking Pro Tools to a stable timecode source (such as a non-linear tape machine or LTC generator) and not a linear tape machine.

Delay Before Locking to Serial Timecode (Avid HDX, Pro Tools|HD, and HD Native Systems Only) Sets the amount of time (in frames) for Pro Tools to wait before attempting to lock to machines that issue servo lock messages. This setting allows time for the servo mechanisms to achieve stable lock.

Remote Mode Section (Avid HDX, Pro Tools|HD, and HD Native Systems Only)

Ignore Track Arming Sets Pro Tools to ignore incoming track arming (record enable) commands. This is useful if you are using a master controller to arm tracks on other machines, but you do not want to arm tracks in Pro Tools.

Set Servo Lock Bit at Play Enable this option when using a synchronizer to control Pro Tools in Remote mode to minimize lock-up times during recording.

Allow 9-Pin Track Arm Commands in Local Mode Sets Pro Tools to respond to incoming track arming (record enable) commands even when the system is not in Remote mode. This is useful if you are using a paddle device to control Pro Tools track arming or punching.

Allow 9-Pin Transport Commands in Local Mode Sets Pro Tools to respond to incoming transport commands even when the system is not in Remote mode. This is useful when using Satellite Link in conjunction with a 9-pin controller. You can receive the transport controls from the 9-pin controller, but not experience the lag-time associated with a 9-pin device.

Punch In Frame Offset Sets an offset (in frames) to compensate for punch in timing advances or delays.

Punch Out Frame Offset Sets an offset (in frames) to compensate for punch out timing advances or delays.

Delay After Play Command Sets the amount of time (in frames) for Pro Tools to wait after receiving a Play command before starting the audio engine. This can prevent false starts when locking to synchronizers that are not fully supported by Pro Tools.

Satellites Section (Avid HDX, Pro Tools|HD, and HD Native Systems with Satellite Link Only)

These preferences are available only with the Satellite Link option. The Pro Tools Satellite Link option lets you link up to 5 Pro Tools systems (or 4 Pro Tools systems and an Avid® Media Composer® with the Video Satellite option or a Video Satellite LE system) over an Ethernet network so that you can cue, play, and stop the transport, make play selections, and solo tracks across any of the systems from any linked workstation.

Transmit Solos Causes a linked Pro Tools system to send the solo status of its tracks to all other linked Pro Tools systems. On other linked systems that are set to receive solos, tracks follow solo behavior as if the solo were on the local system.

Receive Solos Causes a linked Pro Tools system to receive solos from all other linked Pro Tools systems that are set to transmit solo status of their tracks. Tracks on the receiving system follow solo behavior as if the solos were on the local system.

Solo Independent of Linked State Causes a Pro Tools system to send the solo status of its tracks to other satellite systems even when it is unlinked. This allows control of solo status across systems even when transport control is not enabled.

DAE Errors Stop All Linked Systems Causes a DAE error on any linked Pro Tools system to stop the transport on all linked systems. When this option is not selected, linked systems will not stop if a DAE error occurs on one system.

Transmit Play Selections Causes a linked Pro Tools system to send the Edit window selection to all other linked Pro Tools systems. On other linked systems that are set to receive play selections, the selection is mirrored in the Edit window.

Receive Play Selections Causes a linked Pro Tools system to receive Edit window selections from all other linked Pro Tools systems that are set to transmit play selections.

Chapter 9: Peripherals


The settings in the Peripherals dialog define how Pro Tools works with various audio, synchronization and controller devices, as well as with VENUE systems.

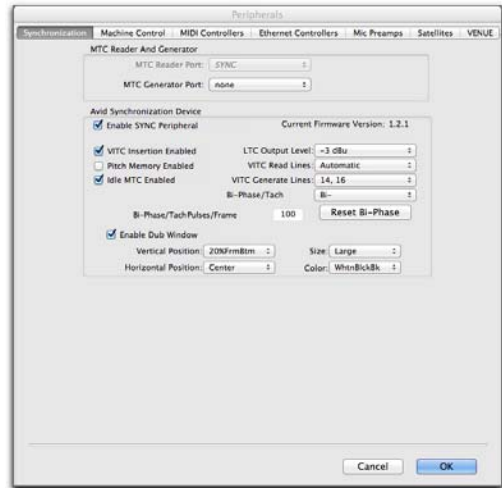
To configure settings for Pro Tools peripherals:

- 1 Choose Setup > Peripherals.
- 2 Click the tab for the type of peripheral you want to configure.
- 3 Change the settings.
- 4 Click OK to save your changes and close the Peripherals dialog.

Synchronization

The Synchronization page lets you configure Pro Tools for use with MIDI Timecode and a synchronization peripheral.

 *For information about synchronization peripherals, see the SYNC HD Guide.*



MTC Reader and Generator

The MIDI Timecode (MTC) settings let you select the MIDI In and Out ports for MTC.

MTC Reader Port The MTC Reader Port setting lets you select the MIDI In port to which the MTC slave device is connected (the source of MTC information from the slave device).

MTC Generator Port The MTC Generator Port setting lets you select the MIDI Out port to which the master device is connected (this the destination of MTC information from Pro Tools).

Synchronization Device (Avid HDX, Pro Tools|HD, and HD Native Systems Only)

The Synchronization Device settings let you configure a synchronization peripheral, such as the SYNC HD or SYNC I/O.

Enable SYNC Peripheral

When this option is selected, any connected synchronization peripheral is enabled for use with Pro Tools.

Current Firmware Version

This displays the firmware version for the connected synchronization peripheral, such as a SYNC HD.

VITC Insertion Enabled

When this option is selected, VITC is inserted into the outgoing video signal—assuming that a video signal is present at a synchronization peripheral video input, and that the synchronization peripheral is in a valid mode for inserting VITC.

Pitch Memory Enabled

When this option is selected, the synchronization peripheral will remain at a *pitch* (sample rate) that corresponds to the last known incoming timecode speed. When deselected, the Synchronization peripheral reverts to the selected sample rate. If Pitch Memory is disabled and the selected external clock reference is not available, then the synchronization peripheral reverts to the nominal, selected internal sample rate setting.

Idle MTC Enabled

When this option is selected, MTC is continuously output. When not enabled, MTC output is muted when playback is idle.

LTC Output Level

This setting adjusts the analog audio level of the LTC output, from -24 dBu to +9 dBu.

VITC Read Lines

This setting determines which line pair of incoming video signal is used for the VITC source. When set to Auto, the synchronization peripheral searches for the first valid line pair automatically. Alternatively, this value can be set to specific VITC line pairs.

VITC Generate Lines

This setting determines the line pair of the outgoing video signal onto which the synchronization peripheral inserts VITC. Normally, this should be left at the default (and preferred) setting of 14/16.

Bi-Phase/Tach Wiring

This setting lets you select from the following options for Bi-Phase or Tach wiring:

- Bi-Phase: FWD = A leads B
- Bi-Phase: FWD = B leads A
- Tach:FWD = B is Low
- Tach: FWD = B is High

Bi-Phase/Tach Pulses/Frame (2–254)

There are several different standards for the number of pulses-per-frame output by Bi-Phase or Tach devices. You can set the synchronization peripheral to operate from 2 to 254 pulses per frame from Pro Tools. The setting should match the PPF rate of the Bi-Phase/Tach encoder on the external device.

Reset Bi-Phase

This button lets you set the Bi-Phase/Tach start frame from Pro Tools. Click the button to update the Timecode Display on the synchronization peripheral to match the session timecode value.

Enable Dub Window

When this option is selected, you can insert a timecode window into a video signal with the following Window dub appearance settings:

Vertical Position Sets the vertical position of the window dub, relative to the bottom of the video picture. The choices range from 10% From Bottom to 50% From Bottom, in 10% increments.

⚠ “10% from Bottom” vertical position is outside the standard “safe title” area, which means it may not be visible on some video monitors.

Horizontal Position Sets the relative horizontal position of the window dub within the video picture. The choices include Extreme Left, Left, Center, Right and Extreme Right.


⚠ The “Extreme” horizontal positions are outside the standard “safe title” area, which means they may not be visible on some video monitors.

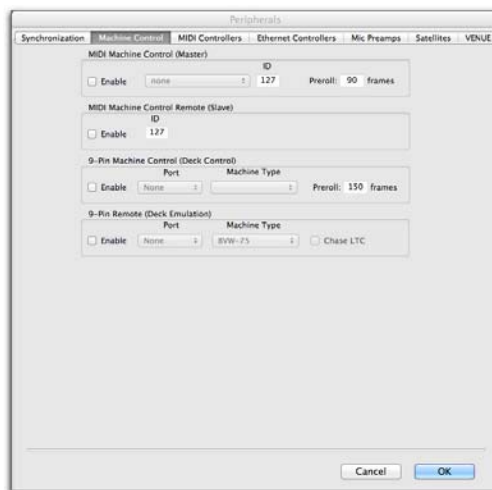
Size Sets the relative size of the window dub (Small or Large).

Color Sets the color of the timecode numbers and background of the window dub. The choices include White on Black Bkgnd, Black on White Bkgnd, White on Video Bkgnd, or Black on Video Bkgnd. (Video Bkgnd means that the background of the window dub is transparent, so that the timecode numbers are displayed directly on top of the video signal, without a contrasting background box.) The default setting is White on Black Bkgnd.

Machine Control

The Machine Control page lets you configure Pro Tools for use with MIDI Machine Control or 9-Pin Machine Control.

 For information about the MachineControl Software Option for Pro Tools, see the MachineControl Guide.



MIDI Machine Control (Master)

Pro Tools provides the following for configuring MIDI Machine Control (Master) settings.

Enable

When the Enable option is selected, Pro Tools is the Master and it sends MMC commands to the slave device and receives MTC information back from the slave device.

MIDI Out Port

The MIDI Out Port pop-up menu lets you select the MIDI Out port to which the slave device is connected.

MMC ID

The MMC ID setting lets you specify the MMC ID number for which MMC information will be sent. MMC commands contain an ID number to identify which machine should respond to the MMC command. There are 128 MMC ID numbers, from 0–127. The default of ID #127 is a special setting that transmits to all 128 MMC IDs. With a setting of 127, Pro Tools will transmit MMC commands to all MMC IDs.

Preroll

The Preroll setting lets you specify a pre-roll time in frames for your MMC slave device. Pre-roll is needed to provide the device with sufficient time to lock to the timecode transmitted by Pro Tools. This value will vary depending on the external device. If the pre-roll time is insufficient, the device may not be ready to lock until after the current timecode position has passed.

MIDI Machine Control (Slave)

Pro Tools provides the following for configuring MIDI Machine Control (Slave) settings.

Enable

When the Enable option is selected, Pro Tools is the slave and it receives MMC commands from the master device and sends MTC information back to the slave device.

MMC ID

The MMC ID setting lets you specify the MMC ID number for which MMC information will be received.

9-Pin Machine Control (Deck Control)

(Avid HDX, Pro Tools|HD, and HD Native Systems with MachineControl Only)

The 9-Pin Machine Control (Deck Control) settings let you configure a Machine Control device for Serial Deck Control mode with Pro Tools. Serial Deck Control mode is available whenever Machine Control is connected using the Serial Deck Control cable. When connected for Serial Deck Control mode, Machine Control enables all Pro Tools track arming, synchronization, and Transport features, as available on your system. Serial Deck Control mode also supports 9-pin serial timecode.

Enable

When the Enable option is selected, Pro Tools is in Serial Deck Control mode.

Port

The Port setting lets you select the 9-pin Machine Control port. The available choices depend on your platform and configuration

Machine Type

After you select a port, Pro Tools automatically polls the port to see what kind of machine is connected. If the machine is recognized, Pro Tools loads the corresponding Machine Type. This includes the corresponding track layout and automatically enters the name of that machine into the Machine Track Arming window. However, if the machine is not recognized, the “Generic 1” personality is automatically loaded.

Preroll

The Preroll setting lets you specify a variable amount of machine preroll to account for the time it may take the machine to achieve servo lock. Shorter preroll values are usually better for non-linear machines. Longer preroll values are usually better for older tape transports. The Machine preroll value is added to any preroll specified in the Transport window.

**9-Pin Remote (Deck Emulation)
(Avid HDX, Pro Tools|HD, and HD Native
Systems with MachineControl Only)**

The 9-Pin Remote (Deck Emulation) settings let you configure Pro Tools for 9-Pin Remote (Deck Emulation) mode. This mode makes Pro Tools operate as a virtual tape deck, supporting most standard Sony P2 9-pin commands. By default, Pro Tools emulates a Sony BVW-75 model video deck. You can also configure Pro Tools to emulate other machines.

Enable

When the Enable option is selected, Pro Tools is in 9-Pin Remote (Deck Emulation) mode.

Port

The Port setting lets you select the 9-pin Machine-Control port. The available choices depend on your platform and configuration

Machine Type

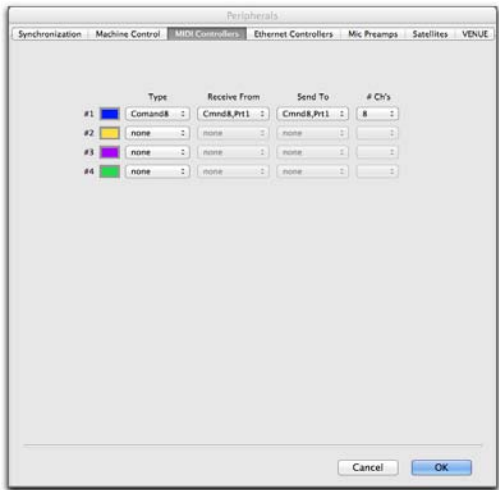
The Machine Type setting lets you select the machine description for specific machine controllers (such as the Soundmaster ATOM). By default, Pro Tools emulates a Sony BVW-75.

Chase LTC

When Chase LTC is enabled, Pro Tools still responds to track arming and record commands. However, Pro Tools will chase incoming LTC instead of behaving as a master or slave device with the machine controller. By slaving Pro Tools to the LTC source instead of slaving the machine to Pro Tools timecode, you can avoid the waiting (and tape wear) that occurs while a machine transport locates and bumps tape to the cue point.

MIDI Controllers

The MIDI Controllers page lets you configure up to four different MIDI controllers for Pro Tools.



Number and Color

The number of the row indicates the order of the selected controllers. The color corresponds to the controller focus around Pro Tools track and plug-in controls.

Type

The Type setting lets you select the MIDI controller connected to your computer. Choose from any of the following types of MIDI controllers:

- Command|8
- HUI
- MotorMix
- Surround Panner
- M-Audio Keyboard

Receive From

The Receive From setting lets you select the MIDI In port to which your MIDI controller is connected.

Send To

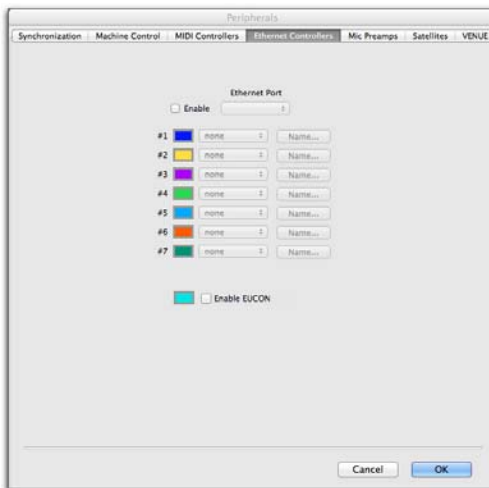
The Send To setting lets you select the MIDI Out port to which your MIDI controller is connected.

Number of Channels

The Number of Channels (# Ch's) setting displays the number of control channels supported by the selected MIDI controller type.

Ethernet Controllers

The Ethernet Controllers page lets you configure up to seven different Ethernet controllers for Pro Tools.



Enable

When selected, Pro Tools is enabled for control by one or more Ethernet controllers (such as D-Command or C|24).

Ethernet Port

The Ethernet Port setting lets you specify the ethernet port on your computer to which your controller is connected.

Number and Color

The number of the row indicates the order of the selected controllers. The color corresponds to the colored controller focus border around Pro Tools track and plug-in controls.

Ethernet Controller


From the Ethernet Controller pop-up menu, select the Ethernet controller that you want to use.

Name

Click the Name button to enter a name for the selected Ethernet controller.


Enable EUCON (Extended User Control)

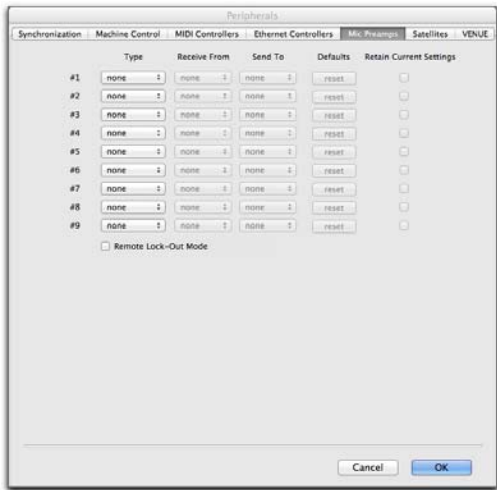
When selected, Pro Tools is enabled for control by one or more EUCON-compatible controllers. EUCON is an innovative high-speed Ethernet protocol developed by Avid to allow hardware control surface to directly communicate with a software application.

 For more information about using Pro Tools with EUCON, see the documentation included with your controller.

Mic Preamps

The Mic Preamps page lets you configure up to nine different Mic Preamps (PRE) for Pro Tools.

 For information about the PRE, see the PRE Guide.



Type

The Type setting lets you select none or PRE. Select the PRE option to declare any connected PRE.

Receive From

The Receive From setting lets you specify the MIDI In port to which the PRE is connected.

Send To

The Send To setting lets you specify the MIDI Out port to which the PRE is connected.

Defaults

Click the Reset button reset the corresponding PRE to its default settings.

Retain Current Settings

Select the Retain Current Settings option to retain PRE channel settings when an existing session with different settings is loaded. New sessions will automatically retain the current settings.

Remote Lock-Out Mode


When the Remote Lock-Out Mode option is selected, all connected PREs ignore their front panel controls.

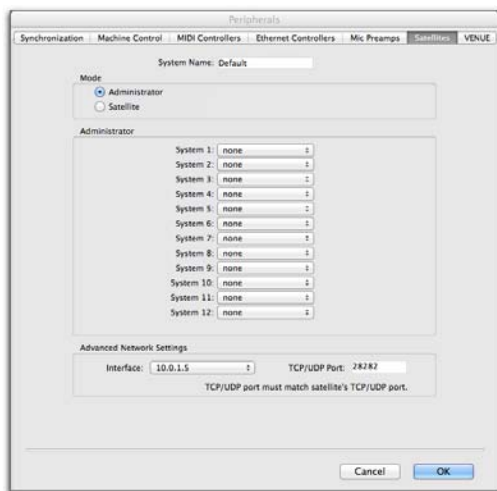
Satellites

The Satellites page lets you configure Pro Tools for use with Satellite Link, Video Satellite, and Video Satellite LE software options.

The Pro Tools Satellite Link option lets you link up to 12 Avid HDX, Pro Tools|HD, or HD Native systems (or 11 Avid HDX, Pro Tools|HD, or HD Native systems and an Avid Media Composer with the Video Satellite option or a Pro Tools Video Satellite LE system) over an Ethernet network so that you can cue, play, and stop the transport, make play selections, and solo tracks across any of the systems from any linked workstation.

The Video Satellite option lets you link an Avid HDX, Pro Tools|HD, or HD Native system and a Media Composer system. The Video Satellite LE option lets you link an Avid HDX, Pro Tools|HD, or HD Native system and a Pro Tools host-based system for monitoring QuickTime HD video.

 *For more information, see the guide for your Satellite option.*



System Name

Type a name for the local system. This name appears in the list of available satellites in other connected systems with the Satellite Link option.

Mode

The Mode settings let you configure the satellite behavior of the local system.

Administrator When enabled, the Administrator option sets the local system to be the administrator system for any satellite systems on the network. Satellite systems can be declared from the administrator system.

Satellite When enabled, the Satellite option sets the local system to be a satellite system on the network. When a system is in Satellite mode, it becomes available to be declared as a satellite from any administrator system on the network.

Administrator

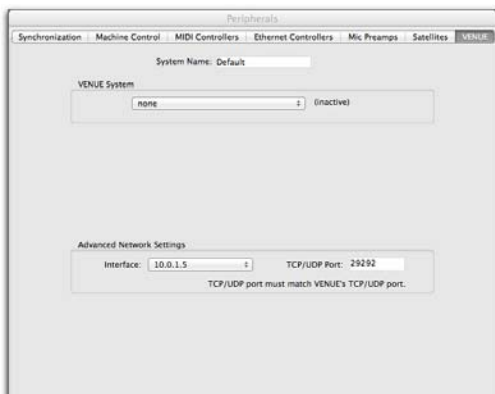
When the local system is in Administrator mode, the Administrator settings let you declare satellites from that system.

System 1–12 These pop-up menus let you declare up to 11 satellite systems (in addition to the administrator system itself) from an administrator system. The number of the system indicates the order of the declared satellites in the Transport window.

VENUE

The VENUE page lets you configure Pro Tools for use with a VENUE system over Ethernet using VENUE Link.

Pro Tools VENUE Link lets you import VENUE Settings into Pro Tools, create Pro Tools markers from VENUE Snapshots, and locate to Pro Tools markers from VENUE Snapshots.



System Name

The System Name field lets you enter a name for your Pro Tools system.

VENUE System

The VENUE System selector lets you select a remote VENUE system for recording to (or playback from) your Pro Tools system. You can also manually enter the IP addresses of the VENUE system.

Advanced Network Settings

The Advanced Network settings let you specify an IP address and port for VENUE Link communication.

Interface For systems that have more than one Ethernet network connection, the Interface setting lets you select which connection to use for VENUE Link communication.

TCP/UDP Port For systems that have more than one Ethernet network connection, you can enter the TCP/UDP port number to be used for VENUE Link communication.

Chapter 10: Configuring MIDI

If you are using external MIDI devices with Pro Tools (such as controllers or sound modules), you can customize your MIDI studio setup to display the names of your MIDI devices in Pro Tools.

MIDI Studio Setup (Mac)

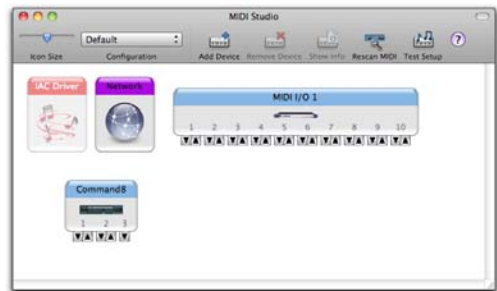
Pro Tools recognizes the ports on your MIDI interface as generic ports. With Mac OS X, you use Apple's Audio MIDI Setup (AMS) utility to identify external MIDI devices connected to your MIDI interface and configure your MIDI studio for use with Pro Tools.

⚠ *To ensure optimum performance, do not change the AMS configuration while Pro Tools is playing back. Stop the Pro Tools transport before launching AMS.*

To configure your MIDI studio in AMS:

- 1 Do one of the following:
 - Launch Audio MIDI Setup (located in Applications/Utilities).
 - In Pro Tools, choose Setup > MIDI > MIDI Studio.

- 2 If the MIDI Studio window is not showing, choose Window > MIDI Studio.

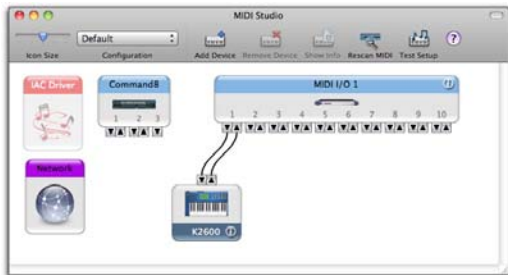


Audio MIDI Setup (MIDI Devices tab)

AMS scans your system for connected MIDI interfaces. If your MIDI interface is properly connected, it appears in the window with each of its ports numbered.


- 3 To create a custom MIDI device for any external MIDI devices connected to your MIDI interface, click Add Device. A new external device icon with the default MIDI keyboard image appears.
- 4 Drag the new device icon to a convenient location within the window.

- 5 Connect the MIDI device to the MIDI interface by clicking the arrow for the appropriate output port of the device and dragging a connection or “cable” to the input arrow of the corresponding port of the MIDI interface.



Making MIDI input and output connections

- 6 Click the arrow for the appropriate input port of the device and drag a cable to the output arrow of the corresponding port of the MIDI interface.

 To remove a connection, select the cable and press Delete.

- 7 Repeat steps 3–6 for each MIDI device in your MIDI setup.

To customize an external MIDI device in AMS:

- 1 Select the external device icon and click Show Info (or double-click the new device icon).





External Device Icon

- 2 Select a manufacturer and model for the new device from the corresponding pop-up menus. (If the Manufacturer and Model pop-up menus do not provide a name for your particular device, you can type a name.)

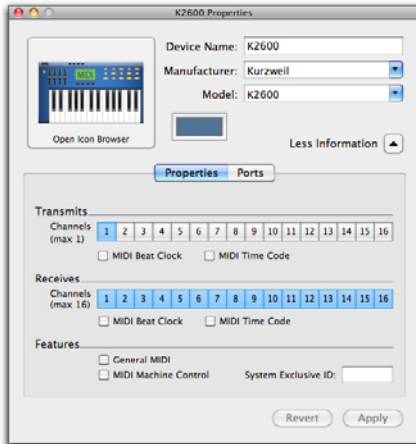


Naming a new MIDI device

 For Manufacturer and Model names, AMS refers to one or more files with the suffix “.middev” in the directory Root/Library/Audio/MIDI Devices. Pro Tools installs a file that contains information for many commercially available MIDI devices, named “Digidesign Device List.middev.” If the Manufacturer or Model names for any of your external MIDI devices is not available in the AMS Manufacturer and Model pop-up menus, you can add them by editing the .middev file in any text editor (such as TextEdit).

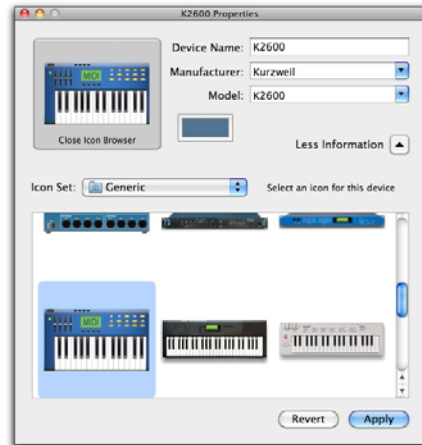
 For more information, see “MIDI Patch Names” on page 698.

- 3 Click the More Information arrow to expand the dialog, then enable the appropriate MIDI channels (1–16) for the Transmits and Receives options. (These determine which channels the device will use to send and receive MIDI.)



Enabling MIDI channels

- 4 Click the device image. The window expands to show images for various MIDI devices (such as keyboards, modules, interfaces, and mixers). Select an icon for your device.



Selecting a device icon

💡 To use your own custom icons, you can place TIFF image files in `/Library/Audio/MIDI Devices/Generic/Images`, and they will appear as choices in the AMS device window.

- 5 Select a device image and click Apply.
- 6 Close the AMS window to quit the AMS application.

The device names you enter appear as MIDI input and output choices in Pro Tools.

MIDI Studio Setup (Windows)

MIDI Studio Setup (MSS) lets you configure the MIDI controllers and sound modules that are connected to your system, and control the routing of MIDI data between your MIDI equipment and Pro Tools.

MSS automatically finds MIDI interfaces, and lets you specify a custom name for each of the MIDI ports within the MIDI Studio Setup document.

MSS also supports XML-based patch file names for storing and importing patch names for your external MIDI devices.

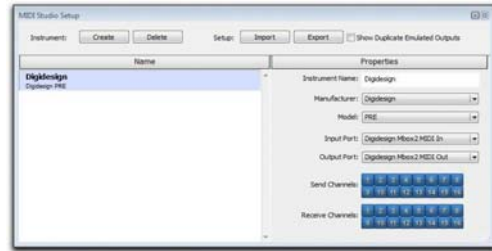
Entire MIDI Studio Setup configurations created within MSS can be imported and exported.

To configure your MIDI studio with MSS:

- 1 In Pro Tools, choose Setup > MIDI > MIDI Studio.
- 2 Configure the MIDI Studio Setup windows.
- 3 When you are finished configuring the MIDI Studio Setup, close the MIDI Studio Setup window.

MIDI Studio Setup Window

The MIDI Studio Setup window is organized into three sections. Interface controls are at the top of the window. All the currently defined instruments are displayed in the Instrument Name list on the left side of the window. A detailed view of MIDI parameters is shown in the Properties section on the right.



MIDI Studio Setup window

Interface Controls

Create Adds a new instrument to the Instrument Name list.

Delete Deletes the instrument or instruments selected in the Instrument Name list.

Import Imports an existing MIDI Studio Setup file.

Export Exports the current MIDI Studio Setup file.

Show Duplicate Emulated Ports When this option is selected and you are using a MIDI interface that supports time-stamping, the MIDI Studio setup window shows both the DirectMusic time-stamped output ports, and non-stamped duplicate emulated output ports.

⚠ *Some MIDI Interfaces will not properly load or unload their drivers unless you quit and re-launch Pro Tools. Refer to the documentation that came with your MIDI interface for more information.*

Instrument List

The Instrument list contains all the currently defined instruments. Selecting an instrument in the list displays that instrument's properties in the Properties section of the window.

Properties Section

The Properties section lets you edit information for new instruments, or instrument currently selected in the Instrument list.

When a previously defined instrument is selected in the Instrument list, the Properties section changes to reflect the properties of the selected instrument.

To define an instrument with MIDI Studio Setup:

- 1 Choose Setup > MIDI > MIDI Studio.
- 2 Click Create.
- 3 In the Instrument Name field, type the name of your instrument, and press Enter.



If you do not enter an instrument name, the Instrument Name field will automatically inherit information from the Manufacturer and Model pop-up menu.

- 4 Set a manufacturer and model for the new device from the corresponding pop-up menus. If the Manufacturer and Model pop-up menus do not provide a name for your particular device, choose None.
- 5 From the Input pop-up menu, choose the input port on your MIDI interface that is connected to the MIDI Out of your instrument.
- 6 From the Output pop-up menu, choose the output port on your MIDI interface that is connected to the MIDI In of your instrument.

- 7 Enable the appropriate MIDI channels (1–16) for the Send Channels and Receive Channels options (These determine which channels send and receive MIDI.)

Instrument Name

The Instrument Name field shows the user-definable instrument name for the currently selected instrument.

Manufacturer

The Manufacturer pop-up menu provides a list of MIDI equipment manufacturers. This list is derived from the XML-based MIDI device files.



For more information, see “MIDI Patch Names” on page 698.

Model

The Model pop-up menu provides a list of MIDI devices, filtered by the manufacturer name. This list is derived from the XML-based MIDI device files provided with your Pro Tools installation.



For more information, see “MIDI Patch Names” on page 698.

Input Port


The Input Port pop-up menu displays a list of available MIDI interface input ports. The MIDI interface port that is set and displayed here is the port through which MIDI data is sent from the external MIDI device specified in the Instrument Name field into your MIDI interface.



If you set the input port to None, the defined instrument will not appear as a choice in a MIDI Input Selector.

Output Port

The Output Port pop-up menu displays a list of available MIDI interface output ports. The port set and displayed here is the port through which MIDI data is sent from your MIDI interface to the MIDI device specified in the Instrument Name field.

 *If you set the output port to None, the defined instrument will not appear as a choice in a MIDI Output Selector.*

Send Channels

The Send Channels grid sets the send channels for the MIDI device specified in the Instrument Name field.

Receive Channels

The Receive Channels grid sets the receive channels for the MIDI device specified in the Instrument Name field.

Part III: Sessions & Tracks

Chapter 11: Sessions

The first step in beginning a Pro Tools project is creating a new session. Sessions are represented by session files that can be saved, copied and made into templates.

Quick Start Session Dialog

Pro Tools provides a Quick Start dialog on launch that lets you quickly and easily create a new session or open an existing one. You can choose to show or hide the Quick Start dialog on launch in the Pro Tools Operation Preferences.

When you first launch Pro Tools, you are prompted by the Quick Start dialog to do one of the following:

- Create a new session from a template.
- Create a new blank session.
- Open any of the last ten most recent sessions.
- Open any other session on your system.

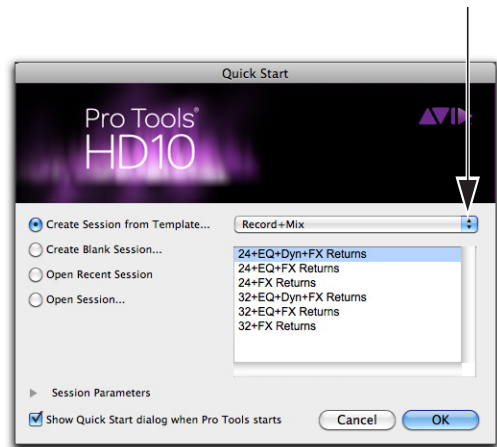


Press Control+Up Arrow or Down Arrow (Windows) or Command+Up Arrow or Down Arrow (Mac) to select different Session Quick Start options. Also, you can use the Up and Down Arrows to select different items in the Recent Sessions and Session Templates lists.

Creating a New Session from a Template

To create a new session from a template:

- 1 Select Create Session from Template.
- 2 From the Session Template pop-up menu, select the category for the session templates you want.

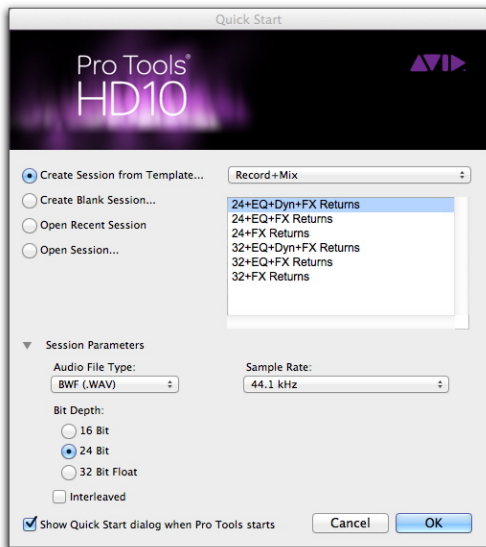


Session Template pop-up menu, Quick Start dialog



You can create your own custom categories. For more information, see “Session Templates” on page 180.

- 3 Select the session template you want to use from the list (on the right).



Quick Start dialog, Session Parameters revealed

- 4 If you want to change any of the session parameters, click the Session Parameters reveal button (to show the parameters) and do any of the following:
 - Select the Audio File Type for the session.
 - Select the Bit Depth (16 bit, 24 bit, or 32 bit float).
 - To create interleaved multichannel audio files in the session, select Interleaved.
 - Select the Sample Rate.
- 5 Click OK.
- 6 In the Save dialog, name the session, choose where you want to save the session, and click Save.

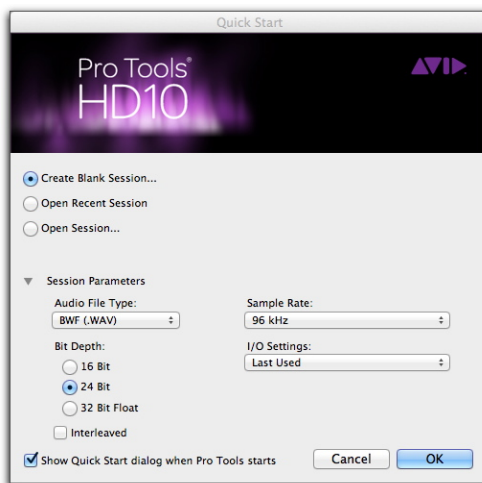


For optimum compatibility between Windows and Mac, set the file type to BWF (.WAV).

Creating a New Blank Session

To create a new blank session:

- 1 Select Create Blank Session.



Quick Start dialog, Create Blank Session

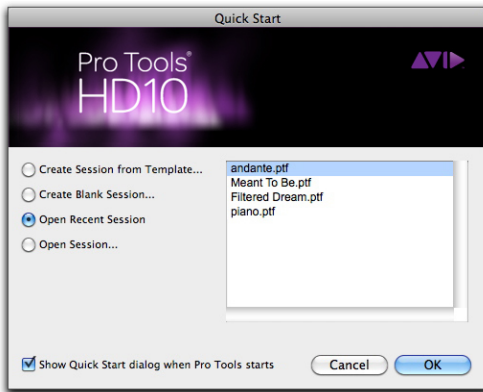
- 2 If you want to change any of the session parameters, click the Session Parameters reveal button and do any of the following:
 - Select the Audio File Type for the session.
 - Select the Bit Depth (16 bit, 24 bit, or 32 bit float).
 - To create interleaved multichannel audio files in the session, select Interleaved.
 - Select the Sample Rate.
 - Select the I/O Settings to use for the session. Several pre-configured I/O Settings are included with your system, or you can select a custom I/O Setting. For more information, see Chapter 7, “I/O Setup.”
- 3 Click OK.
- 4 In the Save dialog, name the session, choose where you want to save the session, and click Save.

Opening a Recent Session

! The *Open Recent Session* option is not available the first time you launch Pro Tools (or if you have cleared the Recent Sessions list by choosing *File > Open Recent > Clear*).

To open a recent session:

- 1 Select Open Recent Session.



Quick Start dialog, Open Recent Session

- 2 Select any of the last ten recent sessions from the list (on the right).
- 3 Click OK.

Opening Any Session

To open any session:

- 1 Select Open Session.
- 2 Click OK.
- 3 In the Choose a Session dialog, navigate to the location of the session file and select it.
- 4 Click Open.

! *Sound Designer II (SD II) files are not supported with versions of Pro Tools higher than 8.0.3. When opening a session created with a lower version of Pro Tools that uses the SD II file format, you are prompted to convert all SD II files to WAV.*

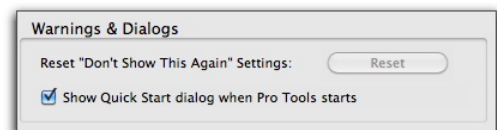
Showing or Hiding the Quick Start Dialog on Launch

To prevent the Quick Start dialog from appearing when Pro Tools launches:

- Deselect the Show Quick Start Dialog when Pro Tools Starts option in either the Quick Start dialog or the Pro Tools Operation Preferences (Setup > Preferences).

To have the Quick Start dialog appear when Pro Tools launches:

- 1 Choose Setup > Preferences.
- 2 Click the Display tab.
- 3 In the Warnings & Dialogs section of the Display Preferences page, select the Show Quick Start Dialog when Pro Tools Starts option.



Show Quick Start Dialog when Pro Tools Starts option

- 4 Click OK.

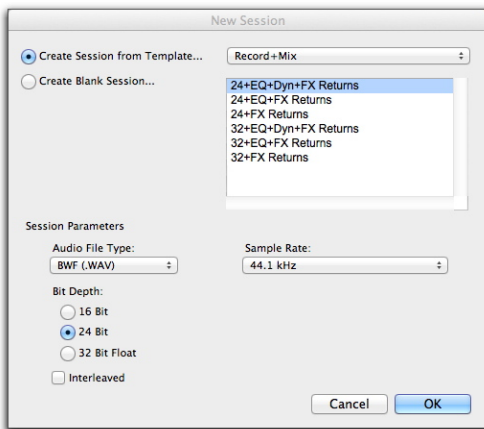
Creating a New Session

The New Session dialog lets you create a new session from a template or create a new blank session (with no tracks or media).

Creating a New Session from a Template


To create a new session from a template:


- 1 Choose File > New.



New Session dialog, Create Session from Template

- 2 In the New Session dialog, select Create Session from Template.
- 3 From the Session Template pop-up menu, select the category for the session templates you want.
- 4 Select the session template you want to use from the list (on the right).
- 5 Select the Audio File Type for the session.

 *For optimum compatibility between Windows and Mac, set the file type to BWF (.WAV).*

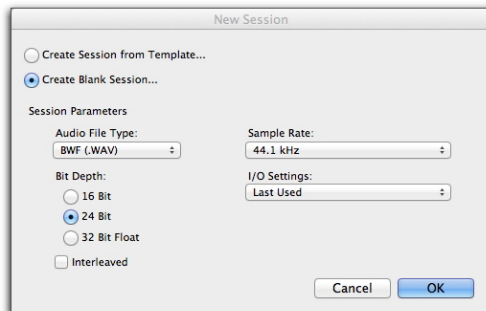
 *Sound Designer II (SD II) files can be imported and exported, but are not supported as the session Audio File Type with versions of Pro Tools higher than 8.0.3.*

- 6 Select the Bit Depth (16 bit, 24 bit, or 32 bit float).
- 7 To create interleaved multichannel audio files in the session, select Interleaved.
- 8 Select the Sample Rate.
- 9 Click OK.
- 10 In the Save dialog, name the session, navigate to the location where you want to save the new session and click Save.

Creating a New Blank Session

To create a new blank session:

- 1 Choose File > New.



New Session dialog, Create Blank Session

- 2 In the New Session dialog, select Create Blank Session.
- 3 Select the Audio File Type for the session.
- 4 Select the Bit Depth (16 bit, 24 bit, or 32 bit float).
- 5 To create interleaved multichannel audio files in the session, select Interleaved.

- 6 Select the Sample Rate.
- 7 Select the I/O Settings to use for the session. Several pre-configured I/O Settings are included with your system, or you can select a custom I/O Setting. For more information, see Chapter 7, “I/O Setup.”
- 8 Click OK.
- 9 In the Save dialog, name the session, navigate to the location where you want to save the new session and click Save.

Bit Depths and Sample Rates

When selecting a bit depth or sample rate for your session, consider fidelity, any compatibility issues with others systems, and storage space.

Bit depth and sample rate also have an effect on the amount of mixing power available in a session. Fewer mixer channels are available with 24-bit and 32-bit floating point sessions, and with sessions at higher sample rates.

Bit Depths

16-Bit Using 16-bit for audio files is useful for keeping audio file sizes down. You may want to use 16-bit for sessions with few tracks, and little mixing and plug-in processing. CDs (Compact Discs) use 16-bit.

24-Bit Using 24-bit for audio files is commonly used for most music production and post-production sessions with multiple audio tracks, mixing, and plug-in processing. 24-bit files take up a third as much space as 16-bit files.

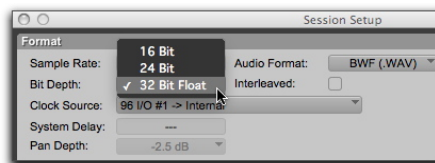
32-Bit Floating Point Using a 32-bit floating point bit depth for audio files in Pro Tools sessions can help avoid clipping or unnecessary dithering with AudioSuite rendering. It can also help avoid rounding errors in signal processing (which can

occur during bit-depth conversion for file playback and real-time plug-in insert processing). However, 32-bit files take up a third more disk space and audio streaming bandwidth, which can be problematic with higher track counts when using slower hard drives.

You can change the bit depth for all newly recorded or imported (and converted) files in the session by selecting a different Bit Depth option in the Session Setup window.

To change the Bit Depth for the Pro Tools session:

- 1 Choose Setup > Session.
- 2 In the Session Setup window, select a bit depth from the Bit Depth selector.



Session Setup window, selecting 32 Bit Float

Sample Rates

44.1 kHz Is the sample rate used for CDs and is used in most common music production environments.

48 kHz Is the standard sample rate for film and video projects, and is commonly used in post-production environments. It is the sample rate used for DVDs.

88.2 kHz and 96 kHz Each of these sample rates are twice the standard sample rates for CD audio and DVD audio respectively. Audio files recorded at higher sample rates take up more drive space, but provide higher resolution for time-based plug-in processing (which can help avoid aliasing). The 88.2 kHz and 96 kHz sample rate options are only available if you are running Pro Tools with audio hardware that supports these sample rates.

172.4 kHz and 192 kHz Each of these sample rates are four times the standard sample rates for CD audio and DVD audio respectively. Audio files recorded at higher sample rates take up more drive space, but provide higher resolution for time-based plug-in processing (which can help avoid aliasing). The 176.4 kHz and 192 kHz sample rate options are only available if you are running Pro Tools with audio hardware that supports these sample rates.

Mixed Audio File Formats

Pro Tools supports mixed audio file formats (such as WAV and AIF) in a single session. When importing audio files into a Pro Tools session, you can choose to Add them rather than Convert them regardless of the audio file format.

You can change the audio file format for all newly recorded or imported (and converted) files in a session by selecting a different Audio Format option in the Session Setup window.

To change the Audio Format for the Pro Tools session:

- 1 Choose Setup > Session.
- 2 In the Session Setup window, select an audio file format (AIF or WAV) from the Audio Format selector.

Interleaved Multichannel Versus Multi-Mono Audio Files

For stereo and greater-than-stereo multichannel audio, Pro Tools supports both interleaved multichannel audio files and multi-mono audio files.

An interleaved audio file contains all channel information, stored in an alternating single audio “stream.” Interleaving distributes and “interleaves” the consecutive bits of data. This helps protect against consecutive errors when the data is read back.

Multi-mono, or “split-mono” multi-channel audio files are separate mono audio files that are treated together as a multichannel group of audio files. This lets you edit each channel (file) independently. For example, with stereo files, two separate files are created, where one file contains the left channel, and the other file contains the right channel. The files are identified by the suffixes of “.L” and “.R”. The two files are linked, and are edited as a pair in stereo tracks in Pro Tools. However, you can decouple them and split them to individual mono audio tracks in Pro Tools so that they can be edited, processed, and mixed independently.

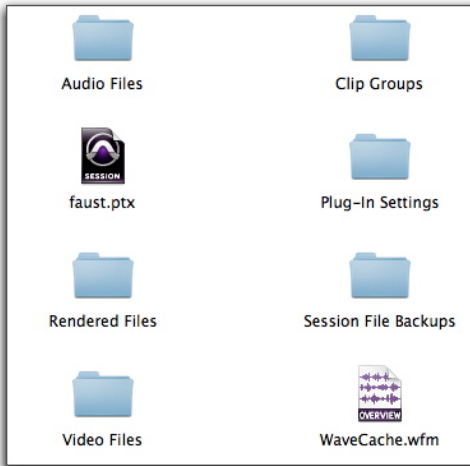
You can change the Interleaved setting for the currently open session in the Session Setup window. When this option is enabled, all newly recorded or imported (and converted) stereo or greater-than-stereo multichannel files in the session will be interleaved audio files.

To enable (or disable) interleaved audio files for the Pro Tools session:

- 1 Choose Setup > Session.
- 2 In the Session Setup window, select (or deselect) the Interleaved option.

Session Files and Folders

When you create a new session, Pro Tools automatically creates a new folder named for your session. Within this folder is the session file, a WaveCache.wfm file, and several subfolders (including, but not limited to, an Audio Files folder and a Clip Group folder).



Typical session folder contents (Mac OS X shown)


Session File

The session file is the document that Pro Tools creates when you start a new project. Pro Tools can open only one session file at a time. The session file is appended with the extension *.ptx*.

Audio Files Folder

The Audio Files folder contains all audio recorded or converted during the session.

When you record a new audio track, the track is saved as a new audio file to the Audio Files folder. You can also import other audio files into the session, and work with them as well.

 *For details on allocating audio tracks to different hard drive locations, including shared media volumes, see “Recording with Multiple Hard Drives” on page 449.*

Fade Files Folder

The Fade Files folder may be present in legacy Pro Tools sessions. Versions of Pro Tools lower than 10.0 use rendered fades and cross-fades that are written to the “Fade Files” folder in the session folder.

Rendered Files Folder

The Rendered Files folder contains any temporary files created by Rendered Elastic Audio processing in the session. It may also contain temporary filtered analysis files (.aan) as a result of any changes to Elastic Audio analysis.

Clip Groups Folder

The Clip Groups folder is the default directory for any clip groups that you export from your Pro Tools session.

WaveCache File

The WaveCache.wfm file stores all of the waveform display data for the session. If you delete the WaveCache.wfm file, Pro Tools creates a new one the next time you open the session.

By storing waveform data in the WaveCache file, sessions open more quickly. The session WaveCache file can be included whenever a session is transferred to another Pro Tools system (7.x and higher).

Pro Tools also maintains a distinct WaveCache file inside the Databases folder, which retains waveform data for all files used on the system.


Deleting or trashing a WaveCache file does not harm the session or your system. However, the session will take longer to open because it has to recalculate waveform data for any associated audio files and store that data in a new WaveCache file.

Session File Backups Folder

The Session File Backups folder contains automatically-generated backups of your Pro Tools sessions. These files are created when working on a session and the Operations preference for Enable Session File Auto Backup is enabled. (See “Enable Session File Auto Backup” on page 129.)


Renamed Audio Files Folder

This folder includes file names that have been renamed when you open a session that contains audio file names with incompatible characters, or, in certain situations, save a copy of a session to a Pro Tools version that does not support long file names.

 For more information, see “Renamed Audio Files and the Renamed Audio Files Folder” on page 397.


Opening a Session


When you open a session, Pro Tools looks in the session folder for audio and fade files linked to the session.

 For more information on opening sessions created on different platforms, Pro Tools systems, or versions of Pro Tools software, see Chapter 18, “File and Session Management and Compatibility.”

To open an existing session:

- 1 Choose File > Open Session.
- 2 Locate the session you want to open and click Open.

 You can also open a session from a DigiBase browser by double-clicking it.

 Sound Designer II (SD II) files are not supported with versions of Pro Tools higher than 8.0.3. When opening a session created with a lower version of Pro Tools that uses the SD II file format, you are prompted to convert all SD II files to WAV.

Opening a Session that Contains Fade Files

When opening a session created in a version of Pro Tools lower than 10.0, Pro Tools calculates and plays back all fades in real time. The “Fade Files” folder in the session folder is neither deleted nor used. Any rendered fades created in legacy sessions are calculated and played back in real time. Any new fades created in the session do not generate any new rendered fade files in the pre-existing “Fade Files” folder.

Opening a Session that Contains Unavailable Files

DigiBase notifies you if files are found but reside on Transfer volumes, or if any required files cannot be found. For more information, see “Locating Audio Files” on page 395.

Opening a Session from a Transfer Volume

When opening a session from a Transfer volume (such as a CD or DVD), DigiBase prompts you to save the session on a Performance volume, and copy and convert any referenced media files. For more information, see “Locating Audio Files” on page 395.

Opening a Session that Contains Unavailable Resources

Pro Tools prompts you when opening a session that contains unavailable voices, I/O paths, DSP resources, or plug-ins. This is common when transferring sessions between systems with different Pro Tools hardware.

The Unavailable Resources dialog provides an initial report of the missing session components. To save a text (.txt) file containing a more detailed Notes report, along with the resulting action, click Yes. The Notes report is named with the session name, followed by Notes.txt. You can choose to save this file in your Session folder, or in another location.

The following occurs when opening a session with unavailable items:

With all Pro Tools Systems:

- ◆ Inserts assigned to unavailable plug-ins are made inactive.
- ◆ Inputs, outputs, and sends that are assigned to unavailable paths are made inactive.

With Avid HDX or Pro Tools|HD Systems Only:

- ◆ Any tracks beyond the maximum number of available voices on the current system are made inactive.

With Pro Tools Host-based Systems Only:

- ◆ Any tracks beyond the maximum number of available voices on the current system are set to *voice off*.

Opening a Session with Audio File Names that Contain Illegal Characters

Pro Tools does not support audio file names that contain the following ASCII characters:

/ (Forward Slash)

\ (Backslash)

: (Colon)

* (Asterisk)

? (Question mark)

“ (Quotation marks)

< (Less-than symbol)

> (Greater-than symbol)

| (vertical line or pipe)

Any “high order” ASCII character (created with a key combination)

When opening sessions that contain audio files with illegal characters, Pro Tools automatically creates a renamed copy of each file (replacing these characters with an underscore “_”). Renamed files are copied to the Renamed Audio Files folder. The original files are left intact in the Audio Files folder.

Before the session opens, you are prompted to save a detailed report of the renamed files and their original file names to a Notes text file. Follow the on-screen instructions. By default, the Notes text file is saved to the Session folder.

Opening a Session that was Saved with +6 dB Fader Gain

All Pro Tools 7.x and higher sessions have a +12 dB fader gain level. However, when saving a Pro Tools 7.x or higher session to a lower version of Pro Tools that supports +6 dB and +12 dB fader gain, the new session can be saved with either a +6 dB or a +12 dB maximum fader gain.

When saving a +12 dB session as a +6 dB session, Pro Tools alerts you that any automation settings over +6 dB will be lowered to +6 dB. See “Saving a Copy of a Session” on page 176.

In Pro Tools 7.x or higher, when opening a session that was saved with a +6 dB maximum gain level, the session will update to a +12 dB range.

Opening Recent Sessions

The Open Recent submenu in the File menu lets you open any of the 10 most recently opened Pro Tools sessions.

To open a recent session:

- Choose File > Open Recent and choose the session you want to open.

If a session is open when choosing a recent session, you are prompted to save it before Pro Tools closes the session and opens the chosen recent session.

To open the most recent session:

- Control+Shift+O (Windows) or Command+Shift+O (Mac).

To clear the recent sessions submenu:

- Choose File > Open Recent and choose Clear.

Opening a Session with Plug-Ins Deactivated

Pro Tools lets you open sessions with all of the session’s plug-ins set to inactive. Since sessions with a lot of plug-ins can take a long time to load, this lets you quickly open any session for immediate visual inspection and audio playback (without plug-ins). If it is the session that you want to work with, you can easily reopen the session with plug-ins activated.

To open a Pro Tools session with all plug-ins set to inactive:

- 1 In Pro Tools, choose File > Open Session.
- 2 In the Open Session dialog, locate and select the session you want.
- 3 Shift-click Open.

To re-open the same session with all plug-ins set to active, do one of the following:

- Choose File > Revert To Saved.
- Choose File > Open Recent and select the most recent session in the submenu.



Press Control+Shift+O (Windows) or Command+Shift+O (Mac) to open the most recent session.



Instead of reverting to the saved version of the session to open the session with all plug-ins active, you can simply make an individual plug-in active by Control-Start-clicking (Windows) or Command-Control-clicking (Mac) it. To make an entire row of plug-ins active, Control-Alt-Start-click (Windows) or Command-Option-Control-click (Mac) any plug-in in the row of inserts.

Saving a Session

You should save regularly while working on your session to ensure that your work is preserved on your hard drive.

Saving the Session File

The **Save** command saves the changes you have made to your session and writes them over the previously saved version of the session file. The **Save** command cannot be undone.

To save a session:

- Choose **File > Save**.

Reverting to a Previously Saved Session File

If you have made changes to a session since you last saved it, you can discard those changes and revert to its previously saved state.

To revert to the last saved version of a session:

- Choose **File > Revert to Saved**.



*If you have enabled the **Operation preference** for **Auto Backup**, you can also open up a backup copy of your session. This feature lets you specify the total number of incremental backups that are kept and how often the session is saved. See “**Auto Backup Section**” on page 129.*



*Reverting to a previously saved session file can also be used to open a session with all of its plug-ins active, after opening it with all of its plug-ins inactive. See “**Opening a Session with Plug-Ins Deactivated**” on page 174.*

Saving the Session File with a New Name

To save a copy of the current session with a new name or to a different hard drive location, use the **Save As** command. The **Save As** command closes the current session and lets you keep working on the renamed copy. This is useful if you are experimenting and want to save successive versions of the session.

By working this way, you can quickly retrace your steps if you want to go back to an earlier version of your session. The **Save As** command saves a new version of the *session file* only, and does not duplicate versions of the audio or fade files.


To save a session with a new name:

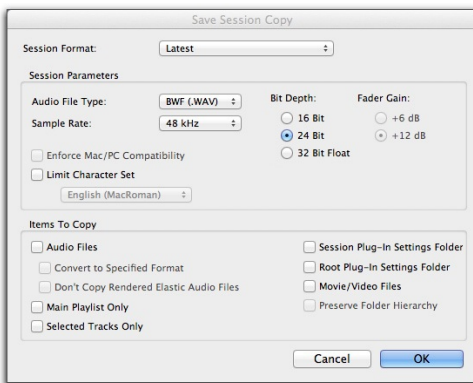
- 1 Choose **File > Save As**.
- 2 Type a new name for your session.
- 3 Click **Save**.

The renamed session file is saved in the session folder along with the original session (unless you specify a different destination). Any new audio files that you record in your renamed session will be placed into the same **Audio Files** folder that was created for your original session.

Saving a Copy of a Session

To save a copy of the current session with or without its audio files and fade files, use the Save Copy In command. In addition, you can specify the session file format, audio file format, bit depth, and sample rate for the session copy.


 For information on sharing sessions between different platforms, Pro Tools systems, or Pro Tools software versions, see Chapter 18, “File and Session Management and Compatibility.”



Save Session Copy dialog

To save a session copy in a new location:

- 1 Choose File > Save Copy In.
- 2 In the Save Session Copy dialog, choose a destination and type a name for the new session file.
- 3 Choose a session file format (Save As Type) for the copied session.
- 4 Set the Audio File Type for the copied session. If the audio files need to be compatible with either Windows or Mac, select BWF (.WAV) or AIFF.
- 5 Set the session Sample Rate and Bit Depth for the copied session.

- 6 If applicable, select a Fader Gain level for the copied session.
- 7 If applicable, select Enforce Mac/PC Compatibility to create session and audio files that can be used on both Windows and Mac Pro Tools systems (see “Saving Copies of Mac Sessions to be Compatible with Windows” on page 400).
- 8 Select the Items to Copy for the copied session.
 To include all audio being used in the session, select the All Audio Files option.
- 9 Click Save.

How the Save Copy In Command Works

Unlike the Save As command, Save Copy In does not close the original session, so subsequent edits are made to the original session. Session copies can be used to archive important sessions, for versioning, or as a means to prepare sessions for transfer to another Pro Tools system.

Save Copy In can save only the audio being used in the session. Any audio that was recorded or imported and then later removed from the session, but not deleted from disk, is not included in the new session copy.

 To include all audio being used in the session, select the All Audio Files option.

Using the Save Copy In command is the only way to change the sample rate of a session. The sample rate of each of the session’s copied audio files is converted to the selected sample rate. When saving a session copy to a different sample rate, Pro Tools uses the selected Sample Rate Conversion Quality option in the Import section of the Processing Preferences page (Setup > Preferences).

When you save a copy of the session to a lower bit depth, Dither (and Noise Shaping) are applied. See the following table:

Dither and Noise Shaping with Save Copy In

Bit Depth	Dither	Noise Shaping
32-bit float to 32-bit float	Yes	Yes
32-bit float to 24-bit	Yes	Yes
32-bit float to 16-bit	Yes	Yes
32-bit float to 8-bit	Yes	No
24-bit to 32-bit float	No	No
24-bit to 24-bit	No	No
24-bit to 16-bit	Yes	Yes
24-bit to 8-bit	Yes	No
16-bit to 32-bit float	No	No
16-bit to 24-bit	No	No
16-bit to 16-bit	No	No
16-bit to 8-bit	Yes	No

The dither setting used for any conversion is the Dither plug-in with Noise Shaping enabled.



For more information about using Dither, see “Dither” on page 979.

Save Copy In Options

When saving a copy of a session, the Save Copy In command provides options.

Session Format

When saving a copy of a session with the Save Copy In command, you can save the session copy in the following formats, depending on your platform:

Mac:

- Latest; supports Pro Tools 10.x sessions (.ptx)
- Pro Tools 7.x -> 9.x Session (.ptf)
- Pro Tools 5.1 -> 6.9 Session
- Pro Tools 5.0 Session
- Pro Tools 4 24-Bit Session
- Pro Tools 4 16-Bit Session
- Pro Tools 3.2 Session

Windows:

- Latest; supports Pro Tools 10.0 and higher sessions (.ptx)
- Pro Tools 7.x -> 9.x Session (.ptf)
- Pro Tools 5.1 -> 6.9 Session
- Pro Tools 5.0 Session



When saving sessions to versions lower than Pro Tools 5.1, multichannel tracks (including stereo) and multi-mono plug-ins are lost. In this case, separate the tracks and plug-ins to individual mono tracks before saving as a Pro Tools 5.0 session or lower.

Session Parameters

When saving a copy of a session with the **Save Copy In** command, the following Session Parameters are available:

Audio File Type

You can save the session to reference BWF (.WAV) or AIFF audio files.

Using Mixed File Types


A session can use mixed audio file types. If your original session has mixed file types, they are *not* converted to the selected file type unless you specify that they be converted by selecting the **Convert to Specified Format** option in the **Items To Copy** section (see “Items to Copy” on page 179).

Bit Depth

You can save the session at a Bit Depth of 16 Bit, 24 Bit, or 32 Bit Float.

Pro Tools 10.0 and higher sessions can use audio files with different bit depths. If your original session has mixed bit depths, they are *not* converted to the selected bit depth unless you specify that they be converted by selecting the **Convert to Specified Format** option in the **Items To Copy** section (see “Items to Copy” on page 179).

When saving to a Session Format lower than 10.0, if your session is in a different bit depth, audio files are converted to the new session bit depth, and copied to the specified location. Also, 32 Bit Float is not available for session formats lower than 10.0.

 For information on bouncing to disk and dither, see “Using Dither” on page 1080.

Sample Rate

You can save the session at various sample rates depending on your system hardware. See “Supported Hardware Configurations with Pro Tools Software” on page 42.


If your session is at a different sample rate, audio files are converted to the new session sample rate, and copied to the specified location.

Fader Gain

When saving a Pro Tools 7.x or higher session to a lower version that supports +12 dB fader gain, you can save the new session with either a +6 dB or a +12 dB maximum fader gain. When saving a +12 dB session as a +6 dB session, any automation over +6 dB will be lowered to +6 dB.

Enforce Mac/PC Compatibility

When saving a Pro Tools 7.x or higher session to a lower version, enable the **Enforce Mac/PC Compatibility** option to force Windows or Mac versions of Pro Tools to create sessions and audio files that are compatible on both platforms.

 For more information, see “Saving Copies of Mac Sessions to be Compatible with Windows” on page 400.

Limit Character Set

When saving a copy of a session to the current session format, you can choose to limit the character set to a single language by selecting the **Limit Character Set** option.

When saving a copy of a session to a lower session format, the **Limit Character Set** option is automatically selected. Select a language from the **Limit Character Set** pop-up menu.

To choose the language encoding when saving a copy of a session:

- 1 Choose File > Save Copy In.
- 2 Select the Limit Character Set option.
- 3 Choose the language you want to use from the Limit Character Set pop-up menu.

Items to Copy

When saving a copy of a session with the Save Copy In command, you can select which items are copied, as follows:

Audio Files

When this option is selected, all audio files are copied to the new location. This setting is automatically selected if you select a Session Format lower than 10.0.

Convert To Specified Format

When the Convert To Specified Format option is selected, all copied audio files are converted to the specified audio file format settings in the Session Parameters section. When this option is not selected, any copied audio files retain their original audio file format settings (including sample rate and bit depth), and are exactly copied, bit-by-bit.



Note that copying formats bit-by-bit is much faster than converting files.

This option is automatically selected if you do any of the following:

- Save to a session format lower than 10.0.
- Enable Enforce Mac/PC Compatibility.

Don't Copy Elastic Audio Rendered Files

When this option is selected, Elastic Audio Rendered files are not copied to the new session's Rendered Files folder.

When opening the new session, Pro Tools opens the session with all available media and any missing Rendered files are regenerated automatically.

Main Playlist Only

When this option is selected, only the main playlists are included with the session copy. Any alternate playlists are not included with the session copy.

When this option is not selected, all playlists are included with the session copy.

Selected Tracks Only

When this option is selected, only the selected tracks in the source session are saved with the session copy. This option is automatically enabled when choosing File > Export > Selected Tracks As New Session.

When this option is not selected, all tracks in the source session are saved with the session copy. This option is automatically disabled when choosing File > Save Session Copy.

Session Plug-In Settings Folder

When this option is selected, the session's Plug-In Settings folder is copied to the new location. The references to these plug-in settings in the session are redirected to the copied settings files.

Root Plug-In Settings Folder

When this option is selected, the contents of the root-level Plug-In Settings Folder are copied into a folder named *Place in Root Settings Folder*, indicating that these files will need to be moved to the root level plug-in settings folder on the destination system before you can use them. The references to these settings files in the session are *not* redirected to point to the copied files.

Movie/Video Files

When this option is selected, session video files (Avid or QuickTime) are copied to the new location, and session references are updated to point to the copied video files.

Preserve Folder Hierarchy

When this option is selected, the relative arrangement of session audio files located across different drives or folders is maintained. The main folder for the session copy will include subfolders for each drive or folder in the original session and the destination subfolders will use the same names as the source drives and folders.

When this option is not selected, the Save Copy In command copies all files of the same type, regardless of their location, into a single destination folder.

Session Templates

In addition to the Session Templates provided in the Pro Tools Session Quick Start dialog, Pro Tools lets you create and share your own custom Session Templates. Pro Tools Session Template files use the suffix “.ptxt” to differentiate them from regular Pro Tools session files (“.ptx”).

Creating and Saving Custom Templates

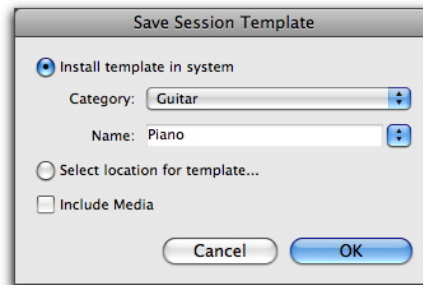
To create a custom Pro Tools Session Template:

- 1 Create a new Pro Tools session and configure it for the session template you want.



For example, if you are a songwriter you might simply want a session consisting of a stereo Instrument track with an instrument plug-in (such as Xpand! ² with a piano preset), a mono audio track (for tracking vocals), a stereo Auxiliary Input track (for an effects bus), and a stereo Master Fader track. You can then use this template every time you sit down to work on a new song.

- 2 Choose File > Save As Template.



Save Session Template dialog

- 3 Configure the Save Session Template dialog (see “Save Session Template Dialog” on page 181).
- 4 Select the Include Media option if there is any audio, MIDI, or video media in the session that you want included in the template.




When the Include Media option is enabled, all media in the session is included in the template. If you want to include media in your session template, be sure that your session only contains the media you want.

- 5 Click OK.

If you selected the Install Template In System option, your session template will be available in the Pro Tools Session Quick Start dialog.

If you selected the Select Location For Template option, you are prompted by the Save As Template dialog to save the file to another location on your system.

 *When you are ready to use a template as the basis for a new session, see “Creating a New Session from a Template” on page 168.*

Save Session Template Dialog

The Save Template dialog provides the following options:

Install Template In System

Select this option to save the template file in the system folder referenced by the Pro Tools Session Quick Start dialog (the Session Templates in the Pro Tools application folder).

Category

The Category pop-up menu is only available if the Install Template In System option is enabled. The Category pop-up menu lets you select the subdirectory in which to save the template file. It also provides options for adding a category and revealing the Session Templates folder in Windows Explorer or the Mac Finder.

Add Category Select this option from the Category pop-up menu to create a new subdirectory in the Session Templates folder.

Name

The Name setting is only available if the Install Template In System option is enabled. This lets you type a new name for the template file. From the Name pop-up menu (to the right of the Name field), you can select from a list of all of the templates available in the currently selected Category. Selecting one places that name in the Name field, letting you overwrite, or create a incremental version of, an existing template.

Select Location For Template


Select this option to save the template file to any directory location on your system. Note that the saved session template will not appear in the Pro Tools Session Quick Start dialog unless it is in a subdirectory (Category) in the Session Templates folder in the Pro Tools application folder.

Include Media

Select this option to include any audio, MIDI, or video media in the session with the template.

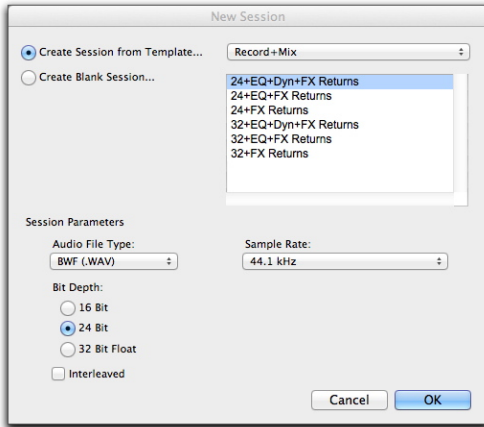
Creating New Sessions from Templates

You can create new session from templates by opening a template. You can open any Pro Tools Session Template file (.ptt) to start a new session based on that template.

 *For information on creating new sessions from templates using the Quick Start dialog, see “Creating a New Session from a Template” on page 165.*

To open a Pro Tools Session Template and save it as a new session:

- 1 Choose File > New.
- 2 In the New Session From dialog, select the Create Session from Template option.



New Session dialog

- 3 Select the Audio File Type, Sample Rate, and Bit Depth for the new session that will be created from the template.
- 4 To create interleaved multichannel audio files in the session, select Interleaved.
- 5 Click OK.
- 6 In the Save New Session As dialog, navigate to the location where you want to save the new session and click Save.

Closing a Session

Pro Tools only lets you work on just one session at a time. The Close Session command closes your current Pro Tools session but leaves the Pro Tools application running. Pro Tools prompts you to save a session when closing it, but it is recommended that you save your work using the Save or Save As command before closing a session.

To close a session:

- Choose File > Close Session.

Exiting or Quitting Pro Tools

When you exit (Windows) or quit (Mac) the Pro Tools application, Pro Tools prompts you to save any open session before exiting or closing the application.

To exit Pro Tools in Windows:

- Choose File > Exit.

To quit Pro Tools on the Mac:


- Choose Pro Tools > Quit Pro Tools.

Chapter 12: Pro Tools Main Windows

Pro Tools provides two complementary ways of viewing tracks in a session:

Mix Window Shows tracks as channel strips, like a mixing board (see “Mix Window” on page 184).

Edit Window Shows tracks and track material against the Timeline (see “Edit Window” on page 186).

 To toggle between the Mix and Edit windows, press Control+Equals (=) (Windows), or press Command+Equals (=) (Mac).



Pro Tools windows

Pro Tools provides several other types of windows:

Transport Window Lets you control the transport and transport-related functions (see “Transport Window” on page 191).

Plug-In Windows Let you control plug-in parameters, such as Frequency and Q for an EQ (see “The Plug-In Window” on page 995).

MIDI Editor Windows Lets you edit MIDI data (see Chapter 32, “MIDI Editors”).

Score Editor Window lets you edit MIDI data as music notation (see Chapter 33, “Score Editor”).

DigiBase Browsers Let you manage, audition, and import media for Pro Tools sessions (see “DigiBase Browsers” on page 196).

In-App Web Browsers Let you access the Avid Marketplace and Pro Tools Online (see “In-Application Web Browser” on page 199).

Mix Window

In the Mix window, tracks appear as channel strips just like a mixing console, with controls for:

- Inserts
- Sends
- Input and output assignments
- Volume
- Panning
- Record enable
- Track Input monitoring
- Automation mode
- Solo and Mute
- Instrument controls
- HEAT controls (Pro Tools HD only)
- Mic preamps

To display the Mix window:

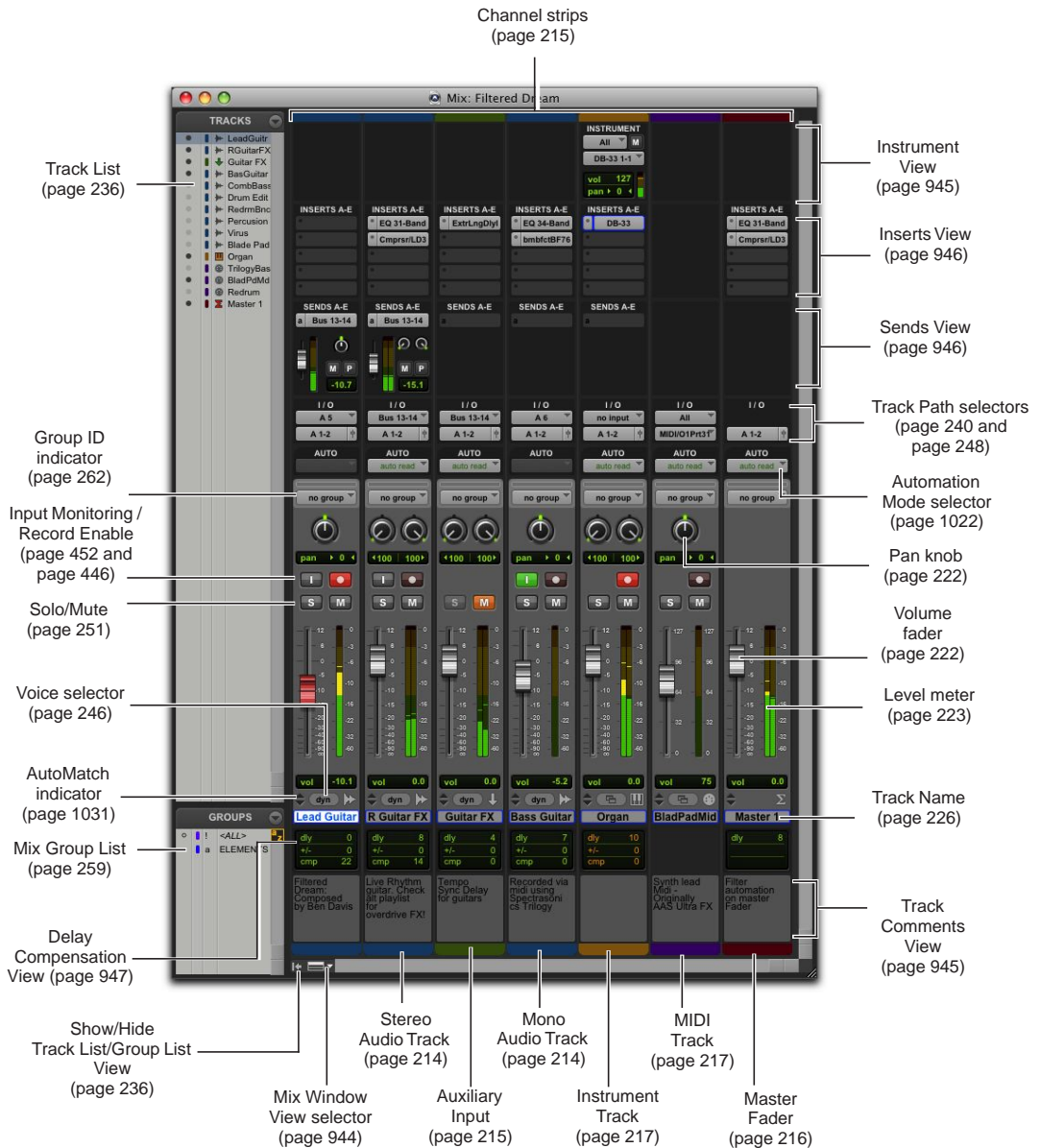
- Choose Window > Mix.

To display all Mix window view options:

- Select View > Mix Window > All.



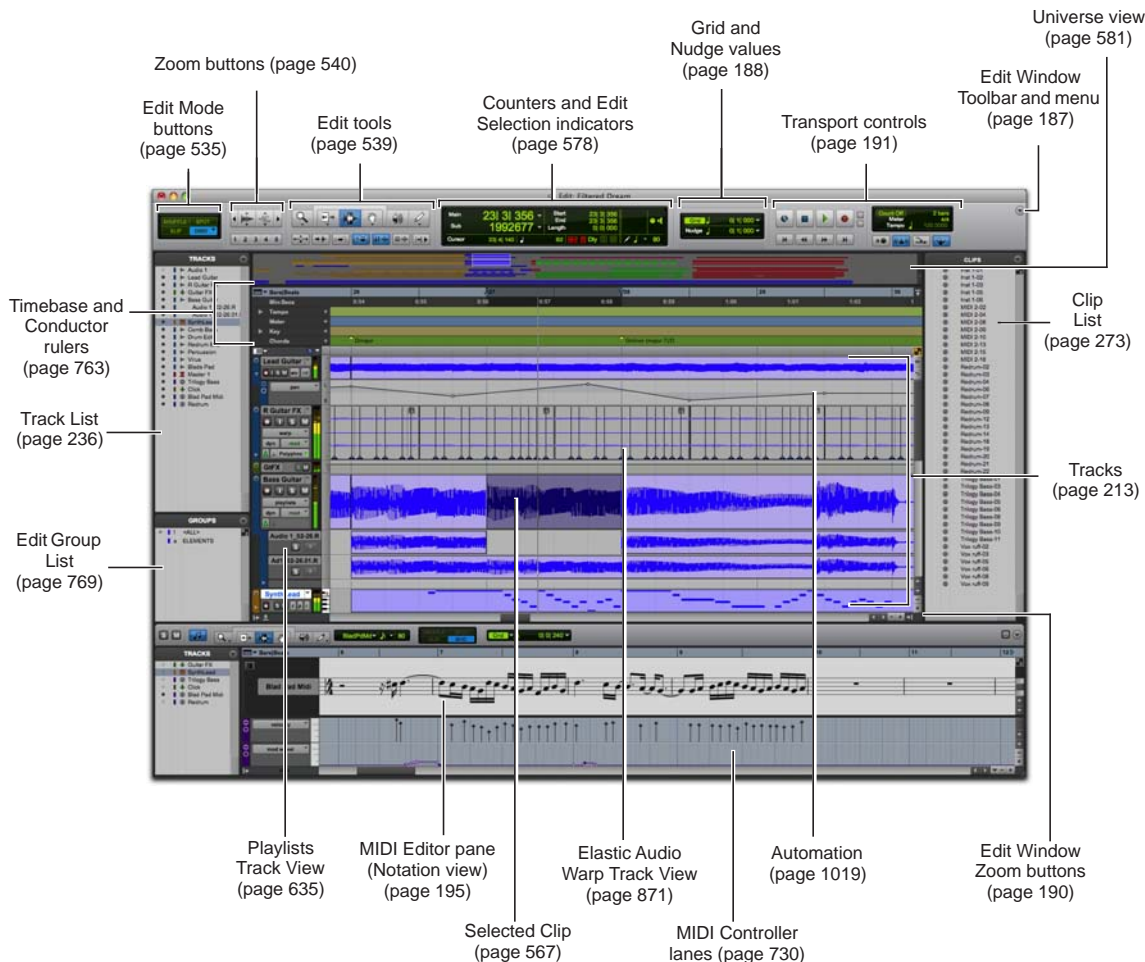
For information on selecting individual view options, see “Views in the Mix and Edit Windows” on page 944.



Pro Tools Mix window

Edit Window

The Edit window provides a Timeline display of audio, video, MIDI notes, as well as other MIDI data and mixer automation for recording, editing, and arranging on tracks. As in the Mix window, each track has controls for record enable, solo, mute, and automation mode.



Pro Tools Edit window

To display the Edit window:

- Choose Window > Edit.

To display all Edit window view options:

- Select View > Edit Window > All.

Edit window view options can be selected individually. See “Views in the Mix and Edit Windows” on page 944.

Edit Window Toolbar

At the top of the Edit window is the Edit Window Toolbar and menu. This Toolbar provides access to the editing modes, tools, options, indicators, and displays for Pro Tools. You can customize the Toolbar in the Edit, MIDI Editor, or Score Editor windows by re-arranging, showing, and hiding the available controls and displays.

Edit Toolbar Controls and Displays

The following controls and displays in the Edit Window Toolbar are always shown.

Edit Modes

The Edit mode affects the movement and placement of audio and MIDI clips (and MIDI notes), how commands like Copy and Paste function, and also how the various Edit tools (Trim, Selector, Grabber, and Pencil tools) work. For more information, see “Edit Modes” on page 535.



Edit mode buttons

Edit Tools

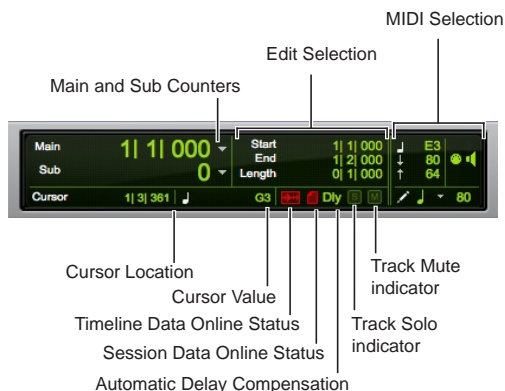
Edit tools are used for editing audio, MIDI, and automation data in Pro Tools. For more information, see “Edit Tools” on page 539.



Edit tools

Counters and Edit Selection Indicators

The Counters and Edit selection indicators provide information where selections are in the Timeline.



Edit window indicators

Main Counter Displays the current Edit insertion location in the Main Timebase ruler.

Sub Counter Displays the current Edit insertion location in the Sub Timebase ruler.

Cursor Location Displays the current cursor location in the Main Timebase ruler.

Cursor Value Displays the value of the current cursor value in peak amplitude (audio), pitch (MIDI), or according to the current automation or controller data type.

Edit Selection Indicators Display the Start, End, and Length of the current Edit selection.

MIDI Selection Indicators and Controls Display the current MIDI Edit selection (MIDI note number, and Note On and Note Off velocities) and provide controls for MIDI editing.

Timeline Data Online Status Indicator Is green when all files in use in track playlists are available for playback. If files are offline, being processed, or otherwise unavailable for playback, this indicator is red.

Session Data Online Status Indicator Is green when all audio and fade files referenced by the session are available for playback. If files are offline, being processed, or otherwise unavailable for playback, this indicator is red.

Delay Compensation Status Indicator Is displayed when Delay Compensation is enabled (Options > Delay Compensation). When Delay Compensation is disabled, this indicator is not displayed.

Track Solo Indicator Lights yellow when any track in the session is soloed. When no tracks in the session are soloed, the Track Solo indicator appears dim green. For systems using Satellite Link, the Track Solo indicator lights dim yellow when a track is soloed on any satellite system.

If the Track Solo indicator is lit, you can click it to clear all solo'd tracks in the session.

Track Mute Indicator Lights orange when any track in the session is muted. When no tracks in the session are muted, the Track Mute indicator appears dim green. (Note that because Mute is an automatable mixing function, the Track Mute indicator does not function to clear all mutes when clicked.)

Grid and Nudge

The Grid and Nudge selectors let you set the Grid and Nudge values for editing in Pro Tools. For information on the Grid Value selector, see “Configuring the Grid” on page 538. For information on the Nudge Value selector, see “Defining the Nudge Value” on page 595.



Grid and Nudge value selectors

Showing and Hiding Additional Controls in the Edit Window

To show or hide controls in the Edit window toolbar:

- 1 Do one of the following:
 - Click the Edit Window Toolbar menu (in the upper-right corner of the window).
 - Right-click in the Toolbar.



Edit Window Toolbar menu

- 2 From the menu, select or deselect any of the following depending on which window you are configuring:

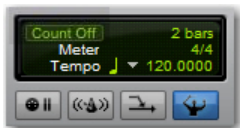
Zoom Controls When selected, the Zoom controls are displayed in the Edit window toolbar.



Transport When selected, the Transport controls are displayed in the Edit window toolbar.



MIDI Controls When selected, the MIDI controls are displayed in the window toolbar.



Synchronization When selected, the Synchronization controls and indicators are displayed in the Edit window toolbar.



Minimal When selected, the Zoom, Transport, MIDI, and Synchronization controls are not displayed in the Edit window toolbar.

All When selected, the Zoom, Transport, MIDI, and Synchronization controls are all displayed in the Edit window toolbar.

Expanded Transport When selected, the Expanded Transport controls are displayed in the Edit window toolbar if Transport is also selected.



Track List When selected, the Track List is shown on the left of the Edit window.

Clip List When selected, the Clip List is shown on the right of the Edit window.

Universe When selected, the Universe view is shown near the top of the Edit window.

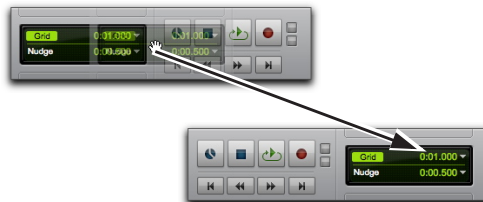
MIDI Editor When selected, the MIDI Editor view is shown at the bottom of the Edit window.

Rearranging Controls and Displays

To rearrange controls and displays in the Edit, MIDI Editor, or Score Editor window toolbar:

- Control-click (Windows) or Command-click (Mac) the control or display you want to move and drag it to a new location in the toolbar.

For example, if you want the Counters and Edit Selection indicators to the right of the Transport controls in the toolbar, Control-click (Windows) or Command-click (Mac) and drag them to the right of the Transport controls.



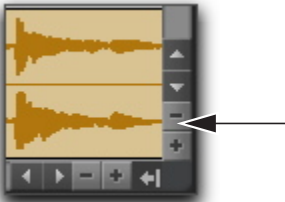
Moving the Counters and Edit Selection indicators

Edit Window Zoom Buttons

The Edit window also provides Zoom buttons in the lower right and upper right corners of the tracks pane.

Vertical and Horizontal Zoom In and Out Buttons

In addition to the Zoom controls in the Toolbar, Pro Tools provides horizontal and vertical zoom buttons in the lower-right corner of the Edit window.



Vertical Zoom buttons (Edit window)



Horizontal Zoom buttons (Edit window)

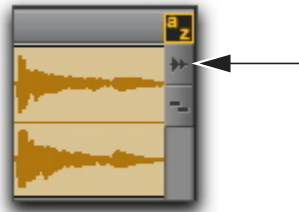
Vertical Zoom Buttons Zoom the track heights proportionally in the Edit window.

Horizontal Zoom Buttons Zoom the Timeline just like the Horizontal Zoom controls in the Edit window toolbar.

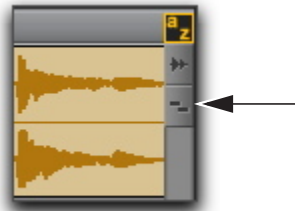
Audio and MIDI Zoom In and Out Buttons

Pro Tools also provides Audio and MIDI Zoom In and Out buttons in the upper-right corner of the Edit window. These controls function exactly the same as the Audio and MIDI Zoom controls in the Toolbar, and let you zoom in and out vertically on audio waveforms and MIDI notes respectively.

⚠ *In the Edit window, MIDI Vertical Zoom only affects tracks not in Clips view.*



Audio Zoom button (Edit window)



MIDI Zoom button (Edit window)

Edit Window Default Length

Pro Tools lets you set a default length for the Edit window in hours, minutes, seconds, and frames. This is useful if you want to assemble a session of a particular length or leave extra room to expand the Edit window's work area in your session. The maximum length is 12 hours and 25 minutes at 48 kHz, and proportionally less at higher sample rates. For best scrollbar sensitivity, set the length to slightly longer (a minute or more) than the total session or song length.

To set the default length for the Edit window:

- 1 Choose Setup > Preferences.
- 2 On the Display page, enter the value in hours, minutes, seconds, and frames for the Edit Window Default Length setting.
- 3 Click OK.

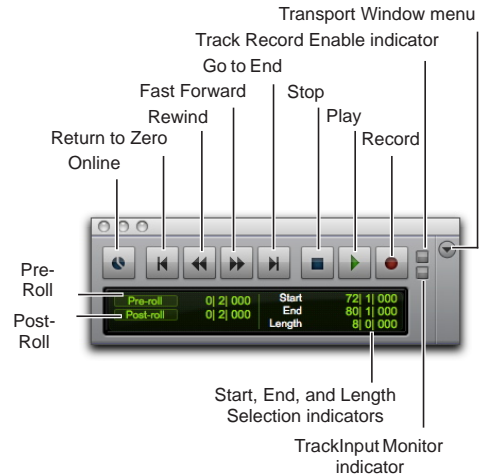
Transport Window

The Transport window can be set to show basic transport controls, counters, MIDI controls, and expanded features. The counters in the Transport window mirror the controls and counters at the top of the Edit window.

To display the Transport window:

- Choose Window > Transport.


Basic Transport Controls and Counters




Transport window showing basic transport controls and counters (Main and Sub Counters and MIDI not shown)


Online Puts Pro Tools online so that playback and recording is triggered by an external timecode source.

Return to Zero Locates to the beginning of the session.

 Press Enter (Windows) or Return (Mac) to Return to Zero.

 You can Right-click the Return to Zero button to access the Write to Start and Write to All automation commands.


Rewind Rewinds from the current play location. You can also click repeatedly to rewind incrementally, by an amount based on the Main Time Scale, as follows:

 With the Numeric Keypad mode set to Transport, you can rewind by pressing 1.


Rewind and Fast Forward Increments


Main Time Scale Format	Increment Amount
Min:Sec	1 second
Timecode	1 frame
Bars Beats	1 bar
Feet+Frames	1 foot
Sample	1 second

Fast Forward Fast forwards from the Timeline insertion point. You can also click repeatedly to fast forward incrementally (by an amount based on the Main Time Scale).


 With Numeric Keypad mode set to Transport, you can fast forward by pressing 2.

Go to End Locates to the end of the session.


 You can press Control+Enter (Windows) or Option+Return (Mac) on the alphanumeric keyboard to locate to the end of the session.

 You can Right-click the Go to End button to access automation commands Write to End and Write to All.

Stop Stops playback or recording.


 You can also stop the transport by pressing the Spacebar, or with the Numeric Keypad mode set to Transport, pressing 0.

Play Starts playback or (if the Record button was clicked first) recording from the Timeline insertion point or the Play Start Marker location if Dynamic Transport mode is enabled.


 You can also begin playback by pressing the Spacebar, or with the Numeric Keypad mode set to Transport, pressing 0.

Right-clicking the Play button lets you select the playback mode from a pop-up menu:


- Half-Speed
- Prime for Playback
- Loop
- Dynamic Transport

 To initiate playback at half-speed, you can also press Shift+Spacebar (Windows or Mac) or Shift-click (Mac) the Play button.

With the Transport stopped, Start-click Play (Windows) or Control-click Play (Mac) to toggle Loop Playback mode. When enabled, a loop symbol appears in the Play button and Pro Tools plays continuously from the beginning of the selection to the end.

 For more information on loop playback and Dynamic Transport mode, see “Loop Playback Mode” on page 424.

Record Arms Pro Tools for recording (the button flashes). Clicking Play then starts recording on record-enabled tracks only.


 You can also begin recording immediately by pressing F12, pressing Control+Spacebar (Windows) or Command+Spacebar (Mac), or with the Numeric Keypad mode set to Transport, pressing 3.

Right-clicking the Record button lets you select the record mode from a pop-up menu:

- Normal
- Loop
- Destructive
- QuickPunch
- TrackPunch (Pro Tools HD only)
- Destructive Punch (Pro Tools HD only)

You can also cycle through the Pro Tools record modes with the Transport stopped, by Start-clicking (Windows) or Control-clicking (Mac) the Record button.

The Record button changes to indicate the currently selected mode: blank for Nondestructive, “D” for Destructive, a loop symbol for Loop Record, “P” for QuickPunch, “T” for TrackPunch, and “DP” for DestructivePunch.

 *To initiate recording at half-speed, you can press Control+Shift+Spacebar (Windows) or Command+Shift+Spacebar (Mac).*

Track Record Enable Indicator When lit (red), indicates that at least one audio track is currently record-enabled. When off (gray), no tracks are currently record-enabled.

TrackInput Monitor Indicator When lit (green), indicates that at least one audio track is currently set to Input Only monitoring (regardless of record enable status). When off (gray), all tracks are in Auto Input monitoring.

Transport Window Menu Lets you select what options to show in the Transport window: Counters, MIDI Controls, Synchronization, Minimal, All, and Expanded Transport.

Pre-Roll During playback or record, specifies the amount of audio that plays before the Play (Timeline) Cursor or Play Start Marker location, or beginning of the Timeline selection. Pre-roll is particularly useful with punch recording since it gives you time to “catch the beat” before reaching the punch-in point. To set the pre-roll amount, type a new value in this field, or drag the Pre-Roll flag in the Main Timebase ruler.


Post-Roll During playback or record, specifies the amount that plays after the end of a Timeline selection. Post-roll is useful in punch recording since playback continues after the punch-out point so

you can check for a smooth transition to previously recorded material. To set the post-roll amount, type a new value in this field, or drag the Post-Roll flag in the Main Timebase ruler.

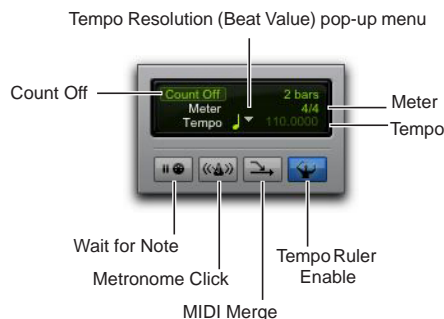
Start Specifies the beginning of the play or record range. You can set the start point by entering a location in this field, or by dragging the corresponding Timeline Selection or Play Start Marker in the Main Timebase ruler. For more information, see “Timeline Selection Markers” on page 461.

End Specifies the end of the play or record range. You can set the end point by entering a location in this field, or by dragging the corresponding Timeline Selection Marker in the Main Timebase ruler. For more information, see “Timeline Selection Markers” on page 461.

Length Specifies the length for the play or record range. You can set the length by entering a location in this field, or by selecting a range in any Timebase ruler.

 *When the Timeline and Edit selections are linked, you can make an Edit selection in a track’s playlist to set the play and record range. See “Linking or Unlinking Timeline and Edit Selections” on page 565.*

MIDI Controls



Transport window, MIDI controls


To view the MIDI controls in the Transport, do one of the following:


- Select View > Transport > MIDI Controls.
- Control-click (Windows) or Command-click (Mac) the Expand/Collapse “+” button in the Transport window to display the MIDI controls.



Expand/Collapse button, Transport Window with MIDI controls


Wait for Note When selected, recording does not begin until a MIDI event is received. This ensures that you begin recording when you’re ready to play, and that the first note, or other MIDI data, is recorded precisely at the beginning of the record range.

 You can press *F11* to turn on Wait for Note, unless the MIDI preference for “Disable *F11* for Wait for Note” is enabled.

 On Mac, the Desktop Keyboard Shortcut uses the same key command that Pro Tools uses for Wait For Note (*F11*). To use *F11* for Wait For Note in Pro Tools, be sure to disable the Desktop Keyboard Shortcut in the Apple System Preferences.


Metronome Click When selected, Pro Tools generates a metronome pulse that can be set to trigger built-in sounds or MIDI instruments during playback and recording.

The Pro Tools metronome is configured in the Click/Countoff Options dialog. Double-click the Metronome Click button to open the Click/Countoff Options dialog.


 With the Numeric Keypad mode set to Transport, press 7 to enable the Metronome Click.

Count Off When selected, Pro Tools counts off a specified number of measures (indicated in the button) before playback or recording begins.

Double-click the Count Off button, to open the Click/Count Off Options dialog.

 With the Numeric Keypad mode set to Transport, press 8 to enable the Count Off.

MIDI Merge When selected (Merge mode), recorded MIDI data is merged with existing track material. When deselected (Replace mode), recorded MIDI data replaces existing track material.

 With the Numeric Keypad mode set to Transport, press 9 to enable MIDI Merge.

Tempo Ruler Enable (Conductor) When selected, Pro Tools uses the tempo map defined in the Tempo ruler. When deselected, Pro Tools switches to Manual Tempo mode and ignores the Tempo ruler.

In Manual Tempo mode, you can enter a BPM value in the tempo field, or tap in the tempo with the T key on your alphanumeric keyboard.

Current Meter Displays the session’s current meter based on the play location. Double-click the Current Meter indicator to open the Change Meter window.

Current Tempo Displays the session’s current tempo based on the play location. In Manual Tempo mode, you can enter a BPM value into this field, or manually tap in a tempo with a computer keyboard or an external MIDI keyboard.

MIDI Editor Windows

MIDI Editor windows let you view and edit MIDI notes and controller data. You can open multiple MIDI Editor windows to work on different parts of your MIDI arrangements separately. MIDI Editor windows show Instrument and MIDI track data superimposed in Notes view, or on separate tracks in Notation view, and lets you view and edit MIDI controller data (such as velocity, pitch bend, and mod wheel) in controller lanes under the Notes pane.



For more information, see Chapter 32, “MIDI Editors.”

Displaying the MIDI Editor in the Edit Window

You can choose to show (or hide) a MIDI Editor pane at the bottom of the Edit window (below the Tracks pane).

To show (or hide) the MIDI Editor view in the Edit window, do one of the following:

- Select (or deselect) View > Other Displays > MIDI Editor.
- Click the MIDI Editor Show/Hide icon in the lower left corner of the Tracks pane in the Edit window.
- Double-click the divider below the Tracks pane in the Edit window.
- From the Edit Window menu, select (or deselect) MIDI Editor.

Score Editor Window

The Score Editor window lets you view and edit Instrument and MIDI tracks as music notation. It automatically transcribes MIDI performances in real-time. You can print a score of your session or just parts from individual tracks.



For more information, see Chapter 33, “Score Editor.”

Eleven Rack Control Window


(Eleven Rack Only)

The Eleven Rack Control window is a special window in Pro Tools that lets you control Eleven Rack entirely from your computer. It can be accessed when using Eleven Rack as an interface with Pro Tools, as well as when connected to another Pro Tools system as a hardware insert for control over USB.

The Eleven Rack Control window is only available when an Eleven Rack is connected to your Pro Tools system.



Eleven Rack Control window

 For more information, see the *Eleven Rack User Guide*.


DigiBase Browsers

DigiBase databases are accessed through DigiBase *browsers*. Browsers provide an intuitive user interface to DigiBase databases with many convenient features for various file management tasks (such as search and sort functions).

Browsers in Pro Tools are analogous to windows in your computer's operating system (such as Windows Explorer or the Mac Finder), but are specially designed for working in Pro Tools. Multiple browsers can be displayed simultaneously, and arranged independently with custom display settings for each.

Browsers let you search and sort audio files, video files, and sessions. These files are displayed in browsers and can be dragged directly into the current Pro Tools session.

When offline items are needed, Pro Tools lets you find the correct matching files, then relink to on-line media.

 To open the *Workspace browser*, press **Alt+;** (Windows) or **Option+;** (Mac).

To bring all DigiBase browsers to the front, press **Alt+J** (Windows) or **Option+J** (Mac).

To send all DigiBase browsers to the back, press **Alt+Shift+J** (Windows) or **Option+Shift+J** (Mac)

The main elements of a DigiBase browser (see the figure below) include the following:

Title Bar Shows the browser type (Workspace, Volume, Project, or Catalog), and the name of its associated volume, session or catalog.

Toolbar Provides the Browser menu, Search icon, View Presets (numbered 1–5), and browser navigation tools.

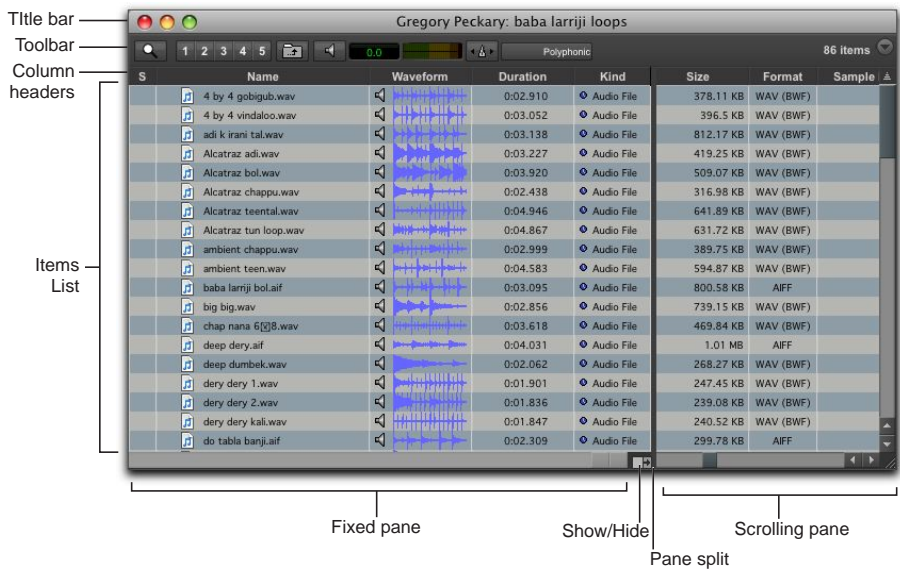
Column Headers Display the type of metadata displayed in the Items List. Column Headers can be:

- Resized by dragging the column border, or rearranged by dragging the Column headers.
- Dragged to either of two available panes, the Fixed or Scrolling panes.

Items List Displays the contents of a volume, folder, session, or Catalog database. Each column in the items list displays metadata (such as file name and format) for volumes, folders, and files in the Items List.

The following types of Pro Tools browsers are available on all supported systems:

- The Workspace browser
- Volume browsers
- The Project browser
- Catalogs




Main elements of a DigiBase browser (Volume browser shown).

Workspace Browser

The Workspace browser provides access to all your mounted volumes, as well as the folders and files they contain.

Using the Workspace browser, you can:

- Access all mounted volumes.
- Access all Catalogs.
- Search across multiple volumes and Catalogs simultaneously.
- Designate volumes for Record and Playback, Playback Only, or Transfer.
- Unmount volumes.
- View, manage, audition, and import individual items in any catalog or mounted volume.
- Update databases for entire volumes.

 For more information about the Workspace browser, see “Workspace Browser” on page 321.

Volume Browsers

Volume browsers provide file management for local and network *volumes*. Volumes are formatted partitions on a physical drive (hard drive). Open a Volume browser by double-clicking a volume in the Workspace browser. Any changes made in Volume browsers (such as copying, deleting, or moving files and folders) is mirrored on the volumes themselves. Volumes include mounted hard drives, network storage, and CD/DVD-ROMs.


Using Volume browsers you can:

- View, manage, audition, and import individual items on the volume.
- Update a database for contents of the volume.

Project Browser

The Project browser provides powerful search and management tools for the files referenced in your current session, regardless of where they are stored. Using the Project browser, you can:

- Show all the media files associated with the current session, including any missing files.
- View, manage, audition, and spot individual items.


 For detailed information about the Project browser, see “Project Browser” on page 324.

Catalogs

Catalogs provide the highest level of Pro Tools file management. Catalogs make it easy to organize files from multiple sources into libraries of favorite files. Catalogs can be sorted and searched, even when the files they reference are offline. Catalogs can also be shared.


Using Catalogs, you can:

- Collect and organize files from any combination of volumes.
- Create catalogs of complete volumes to view and search even if a volume is offline.
- View, manage, audition, and import individual items in the catalog.
- Update a database for contents of catalog.

 For detailed information about Catalogs, see “Catalogs” on page 326.


Task Window

The Task window is a utility for viewing and managing all of the background tasks that you initiate with Pro Tools. Use the Task window to monitor, pause, or cancel background tasks such as file copies, searches, indexing, and fade creation.

 For detailed information about the Task window, see “Task Window” on page 330.

Relink Window

The Relink window provides tools and features for relinking sessions and catalogs to media files. Use Relink tools to search and reacquire missing files for use in the current session.

 For detailed information about the Relink window, see “Relink Window” on page 317.

In-Application Web Browser

Pro Tools provides easy access to the online Avid Store, as well as web-based Pro Tools Help, the Knowledge Base, and other online resources using two in-application Web browsers.

Avid Marketplace Provides a secure web connection to Avid’s online commerce web pages for Pro Tools.

Pro Tools Online Provides easy access to web-based Pro Tools Help, the Knowledge Base, and Avid Audio community forums.

To launch the Pro Tools in-application Web browser for online commerce:

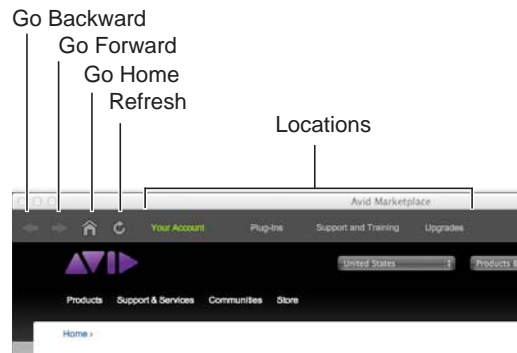
- 1 Ensure that you have an internet connection.
- 2 Choose one of the following from the Marketplace menu:
 - Your Account
 - Plug-ins
 - Support and Training
 - Upgrades

To launch the Pro Tools in-application Web browser for online resources:

- 1 Ensure that you have an internet connection.
- 2 Choose one of the following from the Help menu:
 - Pro Tools Help
 - Pro Tools Knowledge Base
 - Avid Audio Forums

Pro Tools In-Application Web Browser Navigation Controls

The Pro Tools in-application Web browser provides a few simple navigation controls in the Web Browser Tool Bar.



Pro Tools Web browser showing Your Account Log In page

Go Backward Clicking the Go Backward button navigates back to the previously viewed page.

Go Forward Clicking the Go Forward button navigates forward to the next page.

Go Home Clicking the Home button navigates to the starting page for the currently selected Location.

Refresh Clicking the Refresh button reloads the currently viewed page.

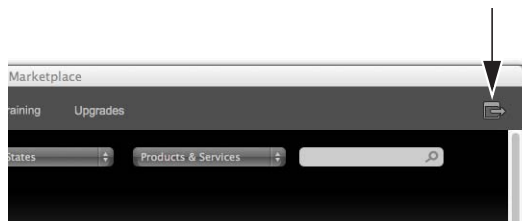
Locations Clicking a location button navigates to the corresponding starting page on the Avid website. The Avid Marketplace and Pro Tools Online browsers provide different Location options.

Launch in External Web Browser

To browse the internet beyond what is available though the Pro Tools in-application Web browser, you can launch the currently viewed page in the default Web browser for your operating system.

To launch the currently viewed page in the default web browser for your operating system:

- Click the Launch in External Web Browser icon in either the Avid Marketplace window or the Pro Tools Online window.



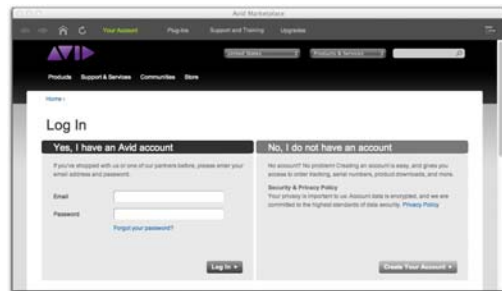
Launch in External Web Browser icon

Avid Marketplace

The Marketplace menu in Pro Tools lets you access your Avid Account, the Avid online store (to shop for plug-ins, upgrades, or Avid support).

To log in to your online Avid account:

- Choose Marketplace > Your Account.



Your Account Log In page

To access the Avid online store for plug-ins:

- Choose Marketplace > Plug-ins.



You can also access the Avid online store from the AudioSuite menu and from track Insert selectors for plug-ins by choosing the Avid Marketplace option.

To access the Avid online store for support and training, do one of the following:

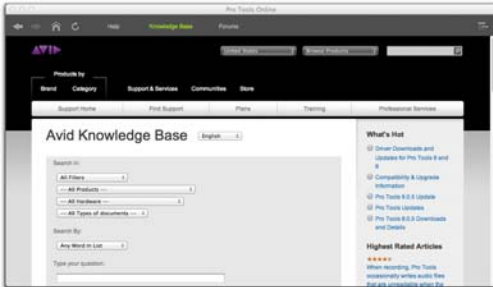
- Choose Marketplace > Support and Training.
- Choose Help > Purchase Avid Support and Training.

To access the Avid online store for software upgrades:

- Choose Marketplace > Upgrades.

Pro Tools Online

In addition to the local resources that are installed with Pro Tools, the Help menu provides access to the Pro Tools Online browser.



Pro Tools web browser showing the online Avid Knowledge Base

To access the Pro Tool online resources from the Help menu:

- Click Help and choose one of the following:
- Pro Tools Help
- Pro Tools Knowledge Base
- Avid Audio Forums

Pro Tools Help

The Pro Tools Help command provides access to web-based Pro Tools Help within the Pro Tools web browser. You will always have access to the latest Pro Tools Help files as they become available. You will also have access to localized Pro Tools Help files as translations become available.

If you are not connected to the Internet, Pro Tools will open the local English Help files that are installed with Pro Tools.



You can also access Pro Tools Help online using Safari or Explorer. This can be useful if Pro Tools is not running, or if you want to change the version or language of Help you are using. For more information, visit (<http://apps.avid.com/ProToolsHelp>).

Pro Tools Knowledge Base

The Pro Tools Knowledge Base command provides access to the online Avid Knowledge Base using the Pro Tools in-application web browser. The Avid Knowledge Base provides extensive information for you to solve problems you may encounter with Pro Tools (including compatibility information and software updates).


Avid Audio Forums

The Avid Audio Forums command provides access to the online Avid Audio Forums using the Pro Tools in-application web browser. The Avid Audio Forum provide a broad-based user community where you can interact with other Pro Tools users.

Managing Windows

Window Configurations

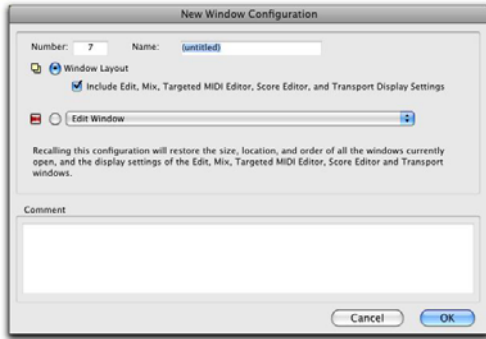
Pro Tools provides a powerful means of managing the configuration of windows in your session, as well as the internal configurations of the Edit, Mix, MIDI Editor, Score Editor, and Transport windows. Use the Window Configuration List to create (or delete) and manage stored Window Configurations. Pro Tools lets you store up to 99 Window Configurations. Window Configurations are saved with the session.

 *Create a session template with your favorite Window Configurations. You can then use the template when you start a new session, or you can use Import Session Data to import Window Configurations into your current session.*

Creating New Window Configurations

To create a new Window Configuration:

- 1 Open the windows you want to include in the Window Configuration and position them where you want on the screen.
- 2 Do one of the following:
 - Choose Window > Configurations > New Configuration.
 - If the Window Configuration List is open, choose New Configuration from the Window Configuration List pop-up menu.



New Window Configuration dialog


- 3 In the New Window Configuration dialog, do one of the following:
 - Select Window Layout and whether or not to include the Edit, Mix, Targeted MIDI Editor, Score Editor, and Transport window display settings.
 - Select a Window Display Settings option from the pop-up menu (Edit Window, Mix Window, MIDI Editor (Targeted), Score Editor Window, or Transport Window).
- 4 Name the Window Configuration.
- 5 You can type a different number for the new Window Configuration. If the number you type is already used by another Window Configuration, you are prompted to replace it or Cancel. Otherwise, Pro Tools automatically fills in the first available number (1–99) for the Window Configuration.

- 6 Type any comments for the new Window Configuration.
- 7 Click OK to store the new Window Configuration, or Cancel.

The new Window Configuration is added to the Window Configuration List.

To create a new Window Configuration at a specific numbered slot:

- On the numeric keypad, type Period (.), a number (1–99), and then Plus (+) to add a new Window Configuration at that number slot.

 *If a Window Configuration already exists at that numbered slot, the new Window Configuration overwrites it.*

Recalling Window Configurations

You can use the Window Configuration List to recall stored Window Configurations. You can also use the Number Keypad on your computer keyboard to recall a specific Window Configuration.

To recall a Window Configuration, do one of the following:

- Select the Window Configuration from Window > Configurations.
- In the Window Configuration List, click the Window Configuration to recall it.
- On the numeric keypad, press Period (.), the number of the Window Configuration (1–99), and then Asterisk (*).

The Pro Tools session's screen layout updates with the stored Window Configuration.

Undoing Window Configurations

Pro Tools lets you revert to the previous Window Layout and Window Settings with a single level of undo. This is useful, for example, if you recall a Window Configuration, but then decide you want to revert to the previous screen state.

To undo a Window Configuration:

- On the numeric keypad, press Period (.), 0, and then Asterisk (*).

To redo a Window Configuration:

- On the numeric keypad, press Period (.), 0, and then Asterisk (*).

If Auto-Update Active Configuration is enabled, undoing the Window Configuration reverts to the previously stored Window Configuration without automatically saving changes (see “Updating Window Configurations” on page 204).

Editing Window Configurations

You can change which properties are stored with Window Configurations, as well as the number, name, or comments.

To edit a Window Configuration:

- 1 In the Window Configuration List, select the Window Configuration you want to edit.
- 2 From the Window Configuration List pop-up menu, select Edit <Name>.
- 3 In the Edit Window Configuration dialog, edit the configuration and click OK.

Updating Window Configurations

After you recall a stored Window Configuration, you can make changes to the window layout and window settings, and then update the stored Window Configuration with your changes. You can do this manually, or you can have Pro Tools automatically update the active configuration.

To manually update a Window Configuration, do one of the following:

- Choose Window > Configurations > Update Active Configuration. The active Window Configuration updates to include any changes to its included properties (Window Layout and Window Display Settings).
- From the Window Configuration List pop-up menu, choose Update <Name>. The selected Window Configuration updates with any changes to its included properties.

To have Pro Tools automatically update the active Window Configuration, do one of the following:

- Select Window > Configurations > Auto-Update Active Configuration.
- From the Window Configuration List pop-up menu, select Auto-Update Active Configuration.

When Auto-Update Active Configuration is selected, the active Window Configuration updates with every change to the Window Layout and Window Display Settings.

Window Configurations that do not include Window Layout and only store Window Display Settings cannot be made active and thus won't automatically update. If you want to update a Window Configuration with changes to the Window Display Settings (such as the width of the Clip List in the Edit window), use the Update command in the Window Configuration List.

Clearing Window Configurations

Clearing a window configuration removes it and its associated slot number while keeping the slot numbers of other window configurations unchanged. The Clear command is useful if you want to insert another configuration in the same slot.

To clear a Window Configuration:

- 1 In the Window Configuration List, select the Window Configuration you want to clear.
- 2 From the Window Configuration List pop-up menu, select Clear <Name>.

Deleting Window Configurations

Deleting a Window Configuration removes it and its slot number, and rennumbers any subsequent Window Configurations.

To delete a Window Configuration:

- 1 In the Window Configuration List, select the Window Configuration you want to delete.
- 2 From the Window Configuration List pop-up menu, select Delete <Name>.

To delete all Window Configurations:

- From the Window Configuration List pop-up menu, select Delete All.

Importing Window Configurations

You can import Window Configurations from another session using Import Session Data.

To import Window Configurations:

- 1 Choose File > Import > Session Data.
- 2 Select the Window Configurations option.
- 3 If you only want to import Window Configurations, click the Session Data to Import pop-up menu and select None.
- 4 Click OK.

Arranging Windows

Pro Tools provides commands to tile or cascade all open windows. Floating windows (such as plug-in windows) and the Transport window are not affected by these commands.

To arrange windows:

- Choose Window > Arrange and select one of the following:

Tile Arranges all open windows in a tiled pattern on the screen.

Tile Horizontal Arranges all open windows in a horizontally tiled pattern on the screen. This option is not available if there are too many windows open.

Tile Vertical Arranges all open windows in a vertically tiled pattern, side by side, on the screen. This option is not available if there are too many windows open.

Cascade Arranges all open windows in cascading pattern on the screen.

Hiding All Floating Windows

The Hide All Floating Windows command hides or shows all floating windows. This is useful for quickly clearing the screen of all floating windows so that you can work in the Edit or Mix windows.

To hide or show all floating windows:

- Select or deselect Window > Hide All Floating Windows.



Press Control+Alt+Shift+W (Windows) or Command+Option+Control+W (Mac) to hide or show all floating windows.

Closing Windows

To close an open window:

- 1 Make sure the window you want to close is in the foreground.
- 2 Do one of the following:
 - Click the Close button for the window.
 - Choose Window > Close Window.



Press Control+W (Windows) or Command+W (Mac) to close the frontmost window.

How Window Configurations Work

A Window Configuration can store the location and size of all open windows, including:

- Edit window
- Mix window
- Targeted MIDI Editor window
- Score Editor window
- Workspace browser
- Project browser
- DigiBase browsers
- Session Setup window
- Time, Tempo, and Event Operations windows
- MIDI Event List
- Real-time MIDI Properties window
- Beat Detective window
- Plug-In windows
- Panner windows
- Mic Pre windows

- All floating windows listed in the Window menu:
 - Task Manager window
 - Transport window
 - Big Counter window
 - Automation window
 - Memory Locations window
 - Machine Track Arming window
 - Video Universe window
 - Video window
 - Color Palette window
 - Undo History window
 - Eleven Rack Control window
 - Disk Space window
 - System Usage window

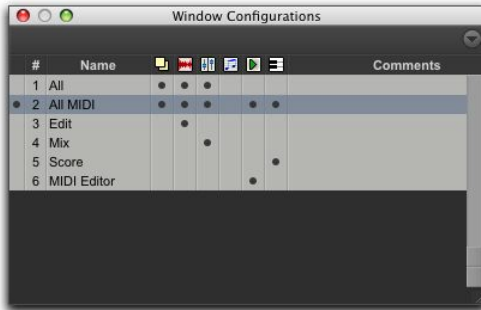


The location and size of the Window Configuration List is not stored with Window Configurations.

A Window Configuration can also store the Window Display settings for the Edit, Mix, Targeted MIDI Editor, Score Editor, and Transport windows.

Window Configuration List

The Window Configuration List lets you recall and manage stored Window Configurations, as well as create new Window Configurations.



Window Configuration List

To open the Window Configuration List:

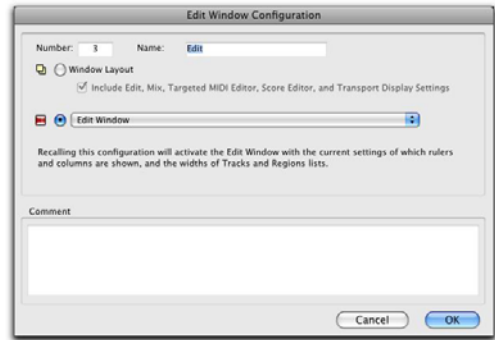
- Select Window > Configurations > Window Configuration List.



Press **Command+Option+J** (Mac) or **Control+Alt+J** (Windows) to show or hide the Window Configuration List.

Window Configuration Properties

Window Configurations can be stored and recalled with the layout of windows in your Pro Tools session, as well as with the settings for the Edit, Mix, and Transport windows. You can specify which of these properties are stored for each Window Configuration either in the New Window Configuration dialog or the Edit Window Configuration dialog.



Edit Window Configuration dialog

Number Is the number of the slot in which the Window Configuration is stored (1–99). You can type Period (.), the number of the Window Configuration, and then Asterisk (*) on the numeric keypad on your computer keyboard to recall the Window Configuration stored in that slot.

Name Is the name of the stored Window Configuration.

Window Layout When enabled, stores the size and location of all open windows.

Include Edit, Mix, Targeted MIDI Editor, Score Editor, and Transport Display Settings When enabled, stores all window display settings for the Edit, Mix, Targeted MIDI Editor, Score Editor, and Transport windows with the Window Config-

uration (such as whether or not the Clip List is shown in the Edit window). This option is only available when the Window Layout option is enabled.

Window Display Settings Stores only the window display settings for the selected window (Edit, Mix, Targeted MIDI Editor, Score Editor, or Transport):

- Edit Window Display Settings
 - Width of the Track List and Group List
 - Height of the Track List
 - Width of the Clip List
 - What rulers are shown (the main ruler is always shown)
 - What track columns are shown (such as Inserts, Sends, or Comments)
 - Tempo editor display
 - Whether Transport controls are shown in the Edit window
- Edit Window Toolbar arrangement
- Mix Window Display Settings
 - Width of the Track List and Group List
 - Height of the Track List
 - What track rows are shown (such as Inserts, Sends, or Comments)
 - Narrow/wide mixer view
- Score Editor
- MIDI Editor (Targeted)
- MIDI Editor (Untargeted)
- Transport Window Display Settings
 - Counters display
 - MIDI controls display
 - Expanded view

Comments Lets you type comments for the Window Configuration.

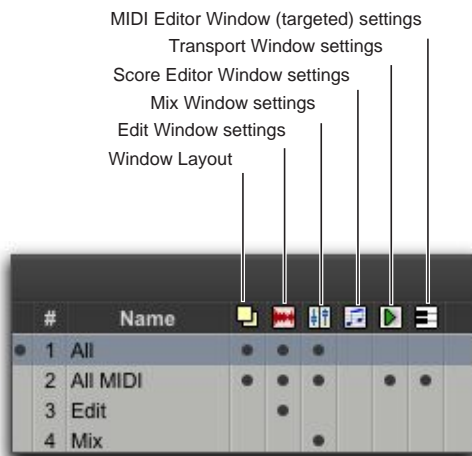
Window Configuration Commands and Options

There are three main types of Window Configuration commands and options

- View Filter icons
- Window Configuration List pop-up menu items
- Active Window configuration options

View Filter Icons

Using the View Filter icons, the Window Configuration List lets you show or hide Window Configurations based on whether or not they are stored with Window Layout, Edit Window settings, Mix Window settings, Score Editor window settings, MIDI Editor Window settings, or Transport Window settings.



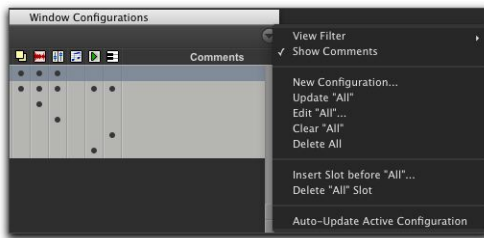
Window Configuration List view filter icons

To show or hide Window Configurations in the Window Configuration List, do one of the following:

- Click the View Filter icon to show or hide Window Configurations that include that property (Window Layout, Edit Window Settings, Mix Window Settings, Score Editor Window Settings, MIDI Editor Window Settings, or Transport Window Settings).
- Select or deselect the View Filter item in the Window Configuration List pop-up menu.

Window Configuration List Pop-Up Menu

You can select viewing and sorting options, along with commands for creating and removing Window Configurations, from the pop-up menu in the Window Configuration List.



Window Configuration List pop-up menu

View Filter Lets you show or hide Window Configuration filter icons in the Window Configuration List as well as show or hide Window Configurations with Window Layout, Edit Window Settings, Mix Window Settings, Score Editor Window Settings, MIDI Editor Window Settings, or Transport Window Settings.

Show Comments Lets you show or hide Comments in the Window Configuration List.

New Configuration Creates a new Window Configuration. This command is also available from Window > Configurations.

Update <Name> Updates the selected Window Configuration with any changes to the layout and settings of windows depending on the Window Configuration's properties. This command is also available from Window > Configurations.

Edit <Name> Opens the Edit Window Configuration dialog where you can edit the properties of the selected Window Configuration.

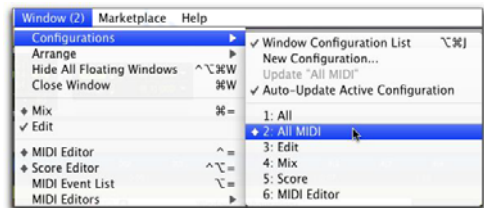
Clear <Name> Clears the selected Window Configuration without deleting the slot (number).

Delete All Deletes all Window Configurations.

Insert Slot Before <Name> Inserts a new slot before the selected Window Configuration and, if necessary, increments the number of each following slot.

Delete <Name> Slot Deletes the selected Window Configuration and its slot (number), and renumbers each subsequent slot.

Auto-Update Active Configuration Automatically updates the active Window Configuration as you make changes to the layout and settings of windows. If Auto-Update Active Configuration is enabled, the number of the active configuration is also displayed in the Window menu. This command is also available from Window > Configurations.



Number of active Window Configuration displayed in Window menu

Active Window Configuration

The active Window Configuration is indicated by a diamond to the left of the Window Configuration Number in the Window Configuration List and in the Configurations submenu (Window > Configuration). If Auto-Update Active Configuration is enabled, the number of the active configuration is also displayed in the Window menu. Only Window Configurations that include Window Layout can be made active.



Window Configuration List showing active configuration

Menus

Pro Tools menus provide commands and options for configuring and working with Pro Tools, sessions, and session material.

Pro Tools Main Menus

Pro Tools includes the following main menus:

File Provides commands that are used to create and maintain Pro Tools sessions.

Edit Provides commands that are used to edit and manipulate the current selection and affect data in the Timeline or the clipboard.

View Provides options and commands to customize what is shown in various windows.

Track Provides commands that are used to create, manage, and edit tracks.

Clip Provides commands that are used to manage and edit clips.

Event Provides commands for editing audio and MIDI events.

AudioSuite Provides AudioSuite plug-ins.

Options Provides commands that let you select several editing, recording, monitoring, playback, and display options.

Setup Provides commands to open dialogs and windows or configure various Pro Tools hardware and software parameters.

Window Provides commands to toggle the display of various Pro Tools windows.


Help Provides access to searchable Pro Tools Help and to the online Pro Tools Knowledge Base. The Help menu also provides easy access to the following PDF documentation (installed with Pro Tools): *Audio Plug-Ins Guide*, *Pro Tools Reference Guide*, and *Pro Tools Shortcuts Guide*.

The Help menu also provides access to Additional Software Options (where you can research Avid product offering for expanding your Pro Tools system) and to the Check For Updates command (so that you can be sure that your Pro Tools software and plug-ins are always up to date).


Track, Clip, and Group List Menus

The Track, Clip, and Group Lists provide pop-up menus for managing and working with the contents of each list, as follows:


Track List Menu Provides commands to show and hide tracks in the Mix, Edit, MIDI Editor, and Score Editor windows. The Track List pop-up menu also lets you sort the contents of the Track List.

 *For more information, see “Track List” on page 236.*

Group List Menu (Edit Groups and Mix Groups) Provides commands to create, display, suspend, and delete Mix and Edit Groups.

 *For more information, see “The Group List” on page 261*


Clip List Menu (Edit Window Only) Provides commands to find, select, sort, clear, rename, time stamp, compact, export, and recalculate waveform overviews of items in the Clip List. The pop-up menu also lets you set the drop order for clips dragged from the Clip List and dropped in the Timeline.

 *For more information, see Chapter 15, “The Clip List.”*

Track Name and Clip Name Right-Click Menus


Track and clip names provide Right-click menus for managing and working with tracks or clips, as follows:

Track Name Right-Click Menu Right-clicking a track name in the Edit window, Mix window, or the Track List provides access to various track commands (such as show/hide, make active/inactive, rename, duplicate, and delete tracks).

 *For more information, see “Track Name Right-Click Menu” on page 239.*


Clip Name Right-Click Menu (Edit Window Only)

Right-clicking a clip name in the Clip List provides commands to clear, rename, time stamp, or replace clips. The pop-up menu also lets you export clip definitions or selected clips as files, recalculate waveform overviews, select the parent file of selected clips in the DigiBase Workspace Browser, or select a clip as an object in the Edit window.

 *For more information, see Chapter 15, “The Clip List.”*

Group Name and Track Group ID Indicator Pop-Up Menus

When you click and hold on a group name in the Group List, or click on a Group ID indicator in a track, a pop-up menu provides access to various group commands (such as selecting tracks in a group).

 *For more information, see “Group Name and Track Group ID Indicator Pop-Up Menus” on page 262.*

Tool Tips

Pro Tools provides Tool Tips in all main windows. Holding the cursor for a few seconds over an abbreviated name, or unlabeled icon or tool, displays either the function or details of the item (depending on the Tool Tips preferences settings).

To configure Tool Tips for Pro Tools:

- 1 Choose Setup > Preferences, and click the Display tab.
- 2 In the Basics section, enable the Tool Tips options you want displayed.

Function Shows the functional name of different Pro Tools items (such as specific buttons, indicators, modes, selectors, and Edit tools).

Details Shows abbreviated or hidden Pro Tools names or values for different Pro Tools items (such as insert names, gain levels, settings, and routing assignments).



To turn off Tool Tips, leave both options deselected.

- 3 Click OK.

Chapter 13: Tracks

Pro Tools provides different types of tracks for working with audio, MIDI and video in Pro Tools sessions.

Track Types

In a Pro Tools session, you can have several different types of tracks. These can include audio, Auxiliary Input, Master Fader, VCA Master (Pro Tools HD and Pro Tools with Complete Production Toolkit only), MIDI, Instrument, and video tracks.



Video track features are described in Chapter 51, “Working with Video in Pro Tools”

Audio, Auxiliary Input, Master Fader, and VCA Master Tracks

Pro Tools provides mono, stereo, and multichannel format audio, Auxiliary Input, Master Fader, and VCA Master tracks.

Audio Tracks Audio tracks let you record to disk and play back from disk recorded or imported audio files.

Auxiliary Input Tracks Auxiliary Input tracks can be used as effects sends, destinations for submixes, as a bounce destination, as inputs to monitor or process audio (such as audio from external MIDI instruments), and for many other audio routing tasks.

Master Fader Tracks Master Fader tracks control the overall level of audio paths that are routed to physical output paths. For example, you could have 24 tracks in a session with channels 1–8 routed to Analog Output 1–2, channels 9–16 to Analog Output 3–4, and channels 17–24 to Analog Output 5–6. You could then create three master faders, one to control each of these output pairs.

Master Fader tracks have additional uses (such as controlling submix levels). For more information, see “Master Fader Tracks and Signal Flow” on page 936.

VCA Master Tracks (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) VCA

Master tracks (or VCA Masters) emulate the operation of voltage-controlled amplifier channels on analog consoles, where a VCA channel fader would be used to control, group, or offset the signal levels of other channels on the console.

VCA Master tracks do not pass audio, so they do not have inputs, outputs, inserts, or sends. A Mix Group is assigned to a VCA Master track, which appears in the VCA track’s Assignment selector.

The controls of the tracks in that Group, called the slave tracks, are modified by the controls on the VCA Master. For more information, see “VCA Master Tracks” on page 939.

MIDI Tracks

MIDI tracks record, store, and playback MIDI data. You cannot select a track format when you create a MIDI track, because audio does not pass through it.

Instrument Tracks

Instrument tracks are a special type of track that provide both MIDI and audio capabilities in a single channel strip. Instrument tracks simplify using software and hardware instruments to record and monitor MIDI instruments.

Video Tracks

Video tracks let you add or import QuickTime (Windows and Mac) or Windows Media Video (Windows Vista only).

With an Avid video peripheral and Pro Tools, you can add or import Avid video to the Pro Tools Timeline (see Chapter 51, “Working with Video in Pro Tools.”)

Video tracks only appear in the Edit window, and video can be viewed in the Video window.

Track Formats

Mono Tracks

A mono audio, Auxiliary Input, Master Fader, or Instrument track controls volume, and, in some cases, panning, for a single channel of audio. A mono audio track uses a single voice. A mono track can also be routed to a multichannel output.

Stereo Tracks

A stereo audio, Auxiliary Input, Master Fader, or Instrument track is a single channel strip for two channels of audio as a stereo pair. Stereo audio tracks use two voices.

Multichannel Tracks (Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

A multichannel track is a single channel strip that plays multiple channels of audio (from 3 to 8 channels at a time). This allows Pro Tools to support multichannel mixing formats including LCRS, 5.1, 6.1, and others. Audio, Auxiliary Input, Master Fader, and Instrument tracks can all use any supported multichannel format.

For more information on surround mixing with Pro Tools, see the following:

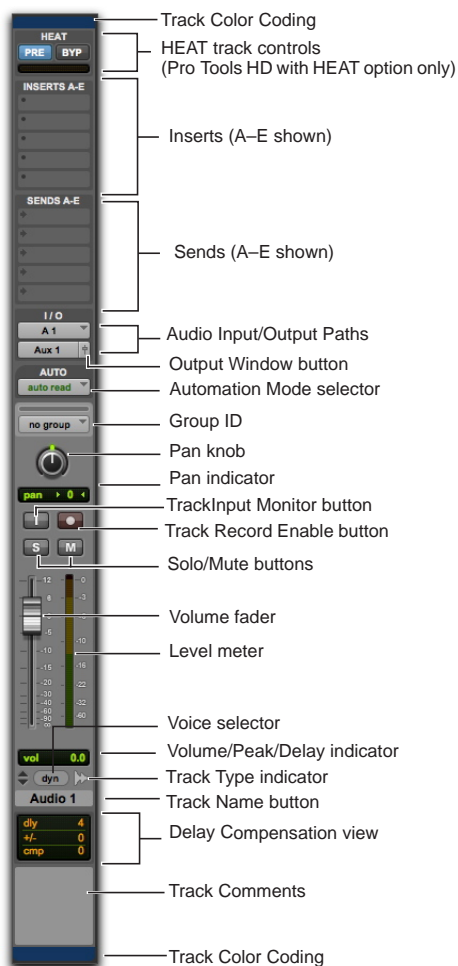
- Chapter 46, “Pro Tools Setup for Surround”
- Chapter 47, “Multichannel Tracks and Signal Routing”
- Chapter 48, “Surround Panning and Mixing”

Track Channel Strips

(Mix Window)

Audio Track Channel Strips

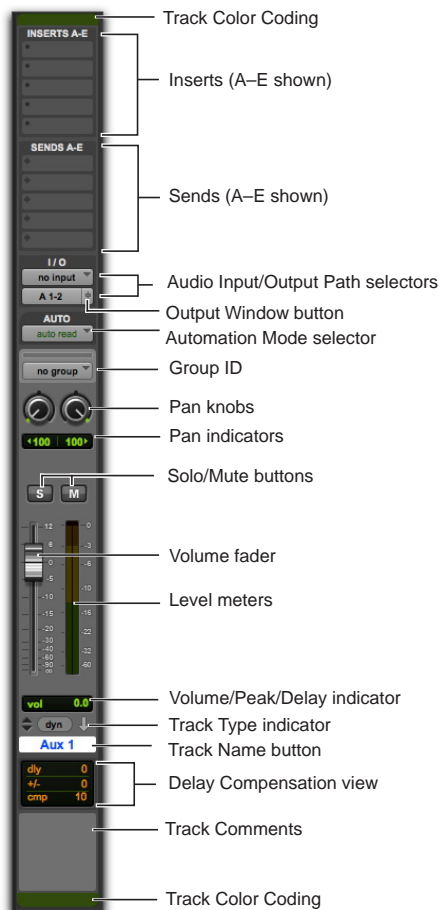
Each audio track has its own set of channel strip controls, including volume, pan, record enable, input monitoring (Pro Tools HD and Pro Tools with Complete Production Toolkit only), automation mode, solo, mute, and voice assignment.



Mono audio track channel strip

Auxiliary Input Track Channel Strips

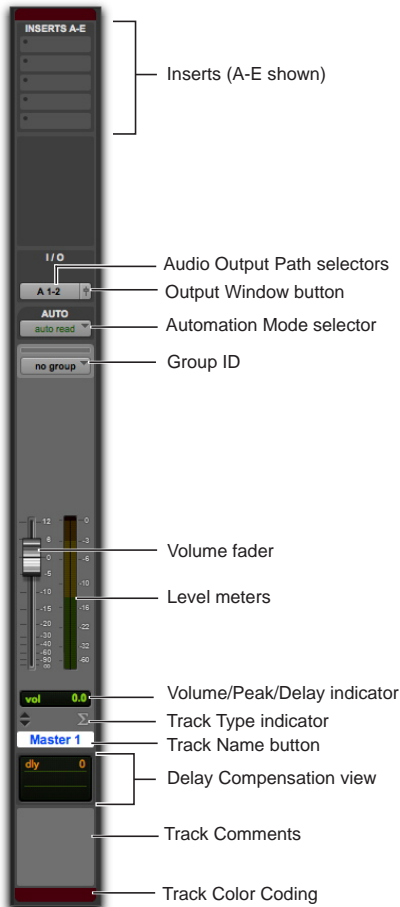
Each Auxiliary Input track has its own set of channel strip controls, including volume, pan, automation mode, solo, and mute.



Stereo Auxiliary Input track channel strip

Master Fader Track Channel Strips

Each Master Fader track has its own set of channel strip controls, including volume and automation mode.




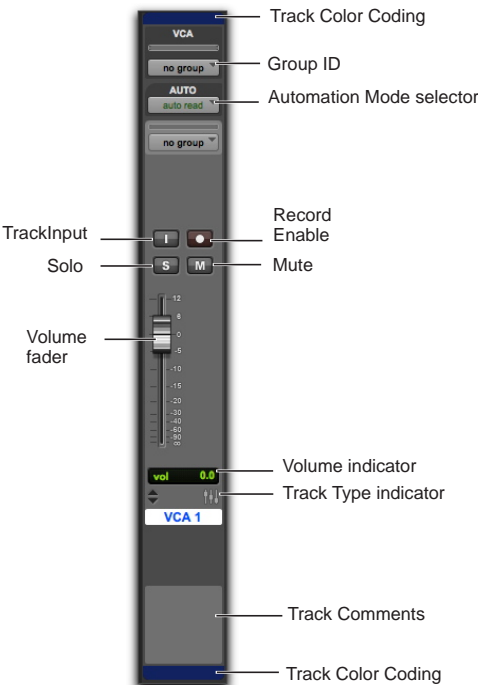
Stereo Master Fader track channel strip

VCA Master Track Channel Strips

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

Each VCA Master track has its own set of channel strip controls, including volume, record enable, input monitoring, automation mode, solo, and mute.

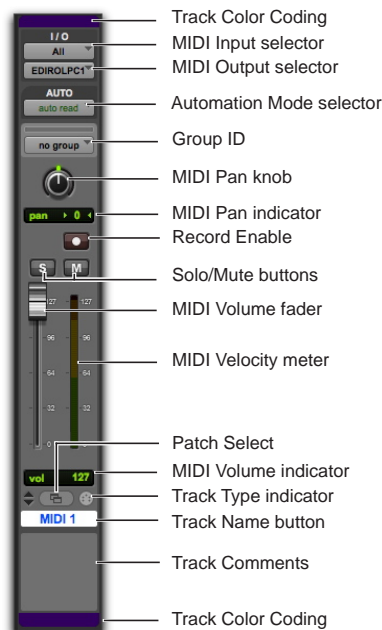
 For more information, see “VCA Master Tracks” on page 939.



VCA Master track

MIDI Track Channel Strips

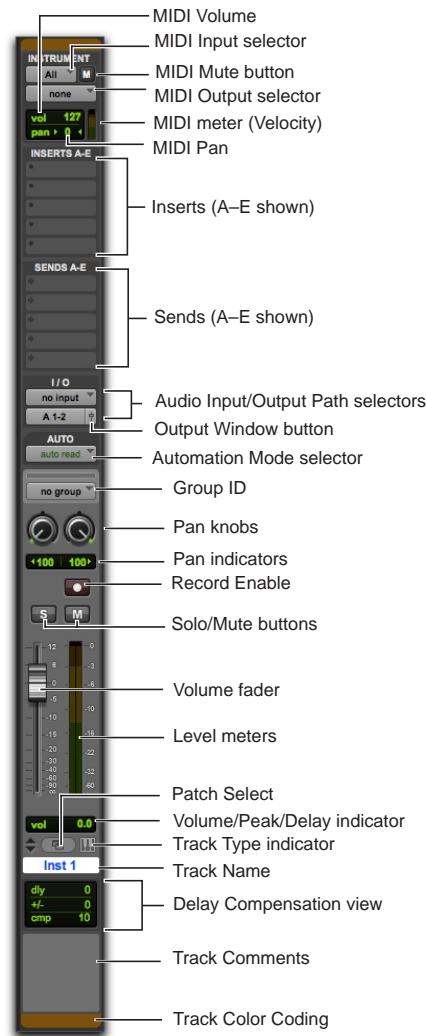
Each MIDI track has its own set of channel strip controls, including MIDI volume, pan, record enable, automation mode, solo, mute, patch assignment, and channel assignment.



MIDI channel strip

Instrument Track Channel Strips

Each Instrument track has its own set of channel strip controls, including audio (like an Auxiliary Input track) volume, pan, automation mode, solo, and mute, and MIDI (like a MIDI track) record enable. Instrument tracks have an additional Instruments view that provides controls for MIDI input, output, mute, volume, and pan (like on a MIDI track).



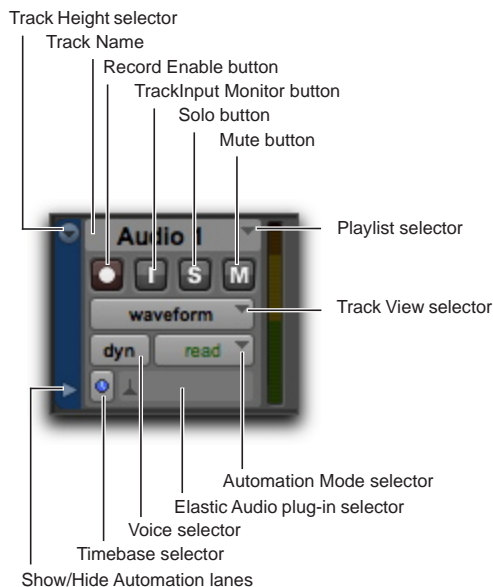
Stereo Instrument track channel strip, Instruments view shown

Track Controls and Indicators

(Edit Window)

Audio Track Controls

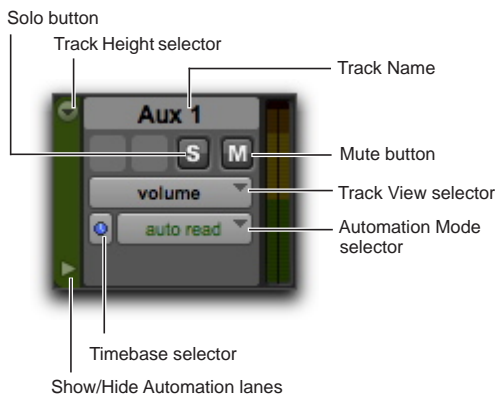
Each audio track has its own set of track controls, including Track Name, Playlist, Record Enable, Input Monitoring (Pro Tools HD and Pro Tools with Complete Production Toolkit only), Solo, Mute, Track View, Track Height, Timebase, Elastic Audio, Voice Assignment, and Automation mode.



Edit window track controls for a mono audio track (medium track height)

Auxiliary Input Track Controls

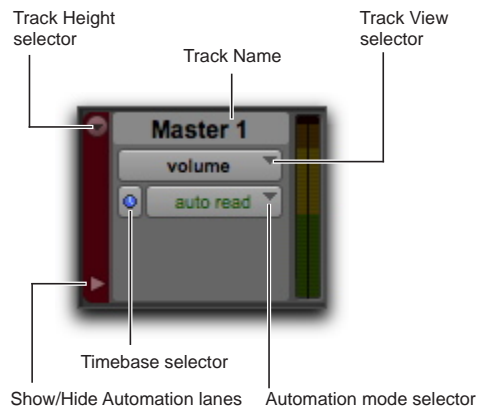
Each Auxiliary Input track has its own set of track controls, including Track Name, Solo, Mute, Track View, Track Height, Timebase, and Automation mode.



Edit window track controls for a stereo Auxiliary Input track (medium track height)

Master Fader Track Controls

Each Master Fader track has its own set of track controls, including Track Name, Track View, Track Height, Timebase, and Automation mode.

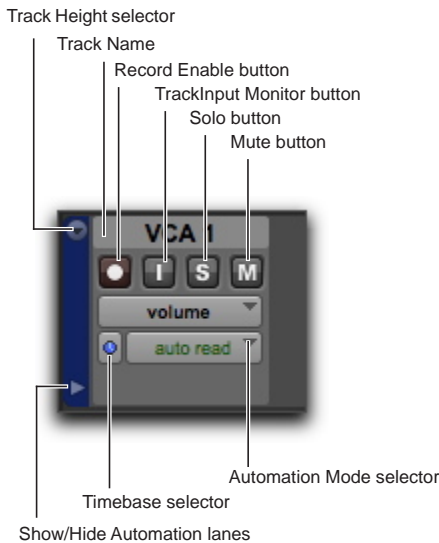


Edit window track controls for a stereo Master Fader track (medium track height)

VCA Master Track Controls

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

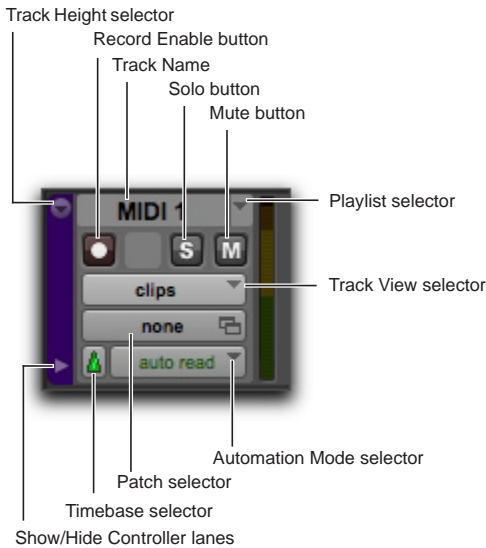
Each VCA Master track has its own set of track controls, including Track Name, Playlist, Record Enable, Input Monitoring, Solo, Mute, Track View, Track Height, Timebase, and Automation mode.



Edit window track controls for a VCA Master track (medium track height)

MIDI Track Controls

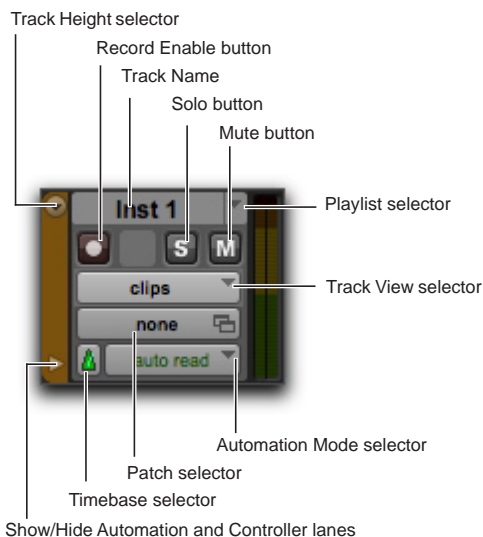
Each MIDI track has its own set of track controls, including Track Name, Playlist, Record Enable, Solo, Mute, Track View, Track Height, Patch, Timebase, and Automation mode.



Edit window track controls for a MIDI track (medium track height)

Instrument Track Controls

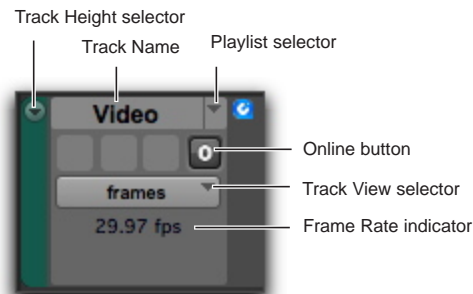
Each Instrument track has its own set of track controls, including Track Name, Playlist, Record Enable, Solo, Mute, Track View, Track Height, Patch, Timebase, and Automation mode.



Edit window track controls for a stereo Instrument track (medium track height)

Video Track Controls

Each video track has its own set of track controls, including Track Name, Playlist, Online, Track View, and Track Height.




Edit window track controls for a video track (medium track height)

Edit Window Views


In addition to track controls and playlists (of clips of events on the Timeline), the Edit window provides the following views that correspond to channel strip controls in the Mix window:

- Comments
- Mic Preamps
- Instruments
- Inserts (A–E and F–J)
- Sends (A–E and F–J)
- I/O
- Real-Time Properties
- Track Color

 See also “Views in the Mix and Edit Windows” on page 944.

Comments View

Comments view lets you type and view comments for a specific track.

 For more information on Comments view, see “Adding Comments to Tracks” on page 226.


Mic Preamps View

The Mic Preamps view shows controls for tracks with physical audio inputs routed through PRE.

 For more information, see the PRE Guide.


Instruments View

Instruments view provides MIDI controls for Instrument tracks: MIDI Input selector, MIDI Output selector, MIDI Volume, MIDI Pan, and MIDI Mute.

 For more information, see “Assigning MIDI Input and Output for Instrument Tracks” on page 250.


Inserts View (A–E and F–J)

Inserts view provides up to ten inserts (software plug-ins and hardware I/O inserts for generating and processing audio) on each audio, Auxiliary Input, Master Fader, and Instrument track.

 For more information on inserts, see Chapter 43, “Plug-In and Hardware Inserts.”

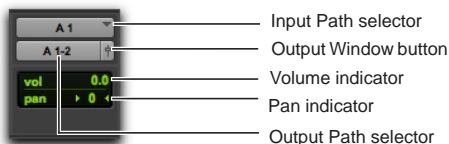
Sends View (A–E and F–J)

Sends view shows send assignments in each audio, Auxiliary Input, and Instrument track.

 For more information, see “Configuring Sends View in the Mix and Edit Windows” on page 953.

I/O View

In the Edit window, I/O view provides Input and Output selectors on audio, Auxiliary Input, Master Fader (output only), MIDI, and Instrument tracks (corresponding to the controls of the same name in the Mix window).



Edit window I/O view (audio track)

To show the I/O View in the Edit window:

- Select View > Edit Window > I/O.



Channel strips in the Mix window always display Input and Output selectors as well as volume and pan values, so there is no I/O view display option for the Mix window.



For details on Input and Output selectors, see “Assigning Audio Inputs and Outputs to Tracks” on page 240.

Volume/Peak/Channel Delay Indicator

The Volume indicator on an audio track has three display modes: Volume, Peak, and Channel Delay.

To toggle the Volume indicator display:

- Control-click (Windows) or Command-click (Mac) the indicator to toggle it between the following modes:

Volume Indicator (and Pop-Up Fader) Shows the current volume, or input level of a track as set by the track Volume fader. In I/O view (Edit window), click the Volume indicator to display the Volume pop-up fader, which can be used to adjust the volume.



Edit window I/O view, Volume pop-up fader (audio track)

Peak Indicator Functions as a headroom indicator based on the last peak playback level. To reset the peak counter, click anywhere in the meter. Values range from $-\infty$ (no signal) to 0 dB.

Pan Indicator

The Pan indicator displays the current pan setting of a track. Pan values range from <100 (full left) to 100> (full right). Pan controls are only available for stereo tracks or for mono tracks routed to a stereo output.

In I/O view (Edit window), click the Pan indicator to display the Pan pop-up slider, which can be used to adjust panning.



Edit window I/O view, Pan pop-up slider (audio track)

⚠ *Greater-than-stereo multichannel tracks do not provide a Pan indicator in I/O view. You can view and adjust multichannel panning in the track's Output window or in the Mix window.*

Pan Slider

The Pan slider controls the balance of a track between the assigned output pair. It only appears if you are using stereo tracks or mono tracks routed to a stereo output.

The Pan slider on a MIDI track is effective only if you are controlling a sound module that supports MIDI panning.

💡 *Send Pan controls can be linked to the Main Pan controls of a track by enabling the Follow Main Pan button in Send window.*

Volume Fader

The Volume fader controls the playback level of a track when it is playing back, and the monitor level of the track when it is recording. You can link the record and monitor levels by enabling the Link Record and Play Faders option in the Operation preferences.

The maximum fader gain for a volume fader is +12 dB.

MIDI Volume Fader

If your MIDI sound module supports volume, the volume fader on a MIDI or Instrument track can send a value of 0–127 to the MIDI volume controller.

Real-Time Properties

In the Edit window, Real-Time Properties view provides access to Real-Time Properties controls (such as Quantize or Transpose) on MIDI and Instrument tracks. For more information, see “MIDI Real-Time Properties” on page 705.

Track Color

In the Edit window, Track Color view displays the Track Color strip at the left-most side of the Track controls.

Track Level Meter

On audio tracks, level meters indicate the level of the signal being recorded or played back from the hard drive. On Auxiliary Input, Master Fader, and Instrument tracks, level meters indicate the level of the signal being played through the channel output. Green indicates nominal levels; Yellow indicates pre-clipping (–6 dB below full scale); and Red indicates clipping. When an audio track is record-enabled, these meters indicate record levels.

On MIDI tracks, and in Instruments view for Instrument tracks, the meter shows the MIDI velocity of the most recent MIDI event.

Pre- and Post-Fader Metering

You can globally set audio track level meters to indicate pre- or post-fader levels. When pre-fader metering is selected, the level meters show levels independent of fader position. With post-fader metering, the level meters respond to fader position.

To toggle track level metering between pre-fader and post-fader metering:

- Select Options > Pre-Fader Metering.

Peak Hold

Pro Tools meters provide a Peak Hold feature with three options: 3 Second, Infinite, or None.

To choose a Peak Hold setting:

- 1 Choose Setup > Preferences and click the Display tab.
- 2 Select a Peak Hold option.
- 3 Click OK.

To clear a meter:

- Click anywhere on the meter.

To clear all meters, do one of the following:

- Option-click (Mac) or Alt-click (Windows) any meter.
- Choose Track > Clear All Clip Indicators.
- Press Option+C (Mac) or Alt+C (Windows).

Clip Indication

Pro Tools meters provide Clip Indication with three options: 3 Second, Infinite, or None. If clipping occurs, the topmost LED will stay lit (red).



Clip indicators appear in plug-in, send, and track windows.

To choose a Clip Indication setting:

- 1 Choose Setup > Preferences and click the Display tab.
- 2 Select a Clip Indication option.
- 3 Click OK.

To clear a clip indicator:

- Click anywhere on the meter.

To clear all clip indicators, do one of the following:

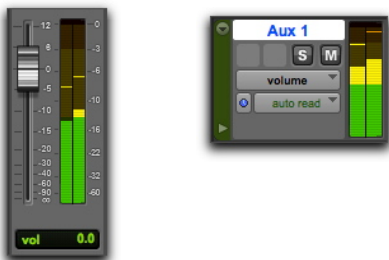
- Option-click (Mac) or Alt-click (Windows) any meter.
- Choose Track > Clear All Clip Indicators.
- Press Option+C (Mac) or Alt+C (Windows).

Wide Meters View

Wide Meters view expands the width of the level meters for tracks in both the Mix and Edit windows, to make the track level meters easier to read. Wide Meters view are also available Narrow Mix view.

To toggle Wide Meters View on or off:

- Command-Option-Control-click (Mac) or Control-Alt-Start-click (Windows) any track level meter in the Mix or Edit window.



Wide Meters view, Mix and Edit windows

Creating Tracks

You can create mono and stereo tracks on all Pro Tools systems. With Pro Tools HD or Pro Tools with the Complete Production Toolkit option, you can also create multichannel tracks (from LCR to 7.1).

When new tracks are created, they are given a default name that can be changed at any time.

- ◆ To insert new tracks next to a specific track in a session, select that track by clicking the track's name in the Mix or Edit window before opening the New Tracks dialog. The new tracks are added immediately after the selected track.
- ◆ To insert new tracks after the last tracks in a session, make sure that no track names are selected on-screen before opening the New Tracks dialog.



You can also add tracks to your session by importing them from preexisting sessions. See “Importing Session Data” on page 356.

Adjusting Track Width

(Mix Window)

The Narrow Mix command lets you view all tracks/channels in the Mix window at a reduced width to conserve screen space in a large session. (See “Track Height” on page 234, to adjust track height in the Edit Window.)

To reduce the width of tracks in the Mix window:

- Select View > Narrow Mix.

To display tracks at normal width:


- Deselect View > Narrow Mix.

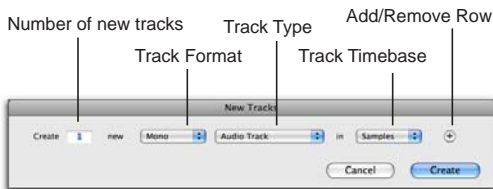


You can toggle track width by pressing Command+Option+M (Mac) or Control+Alt+M (Windows).

To create new tracks:


- 1 Do one of the following to open the New Tracks dialog:
 - Choose Track > New.
 - Right-click any Track Name in the Mix or Edit windows, or Track List, and choose New.

 Press **Control+Shift+N** (Windows) or **Command+Shift+N** (Mac) to open the New Tracks dialog




New Tracks dialog


- 2 Select the type of track you want to add from the Track Type pop-up menu.

 To auto-scroll the Track Type pop-up menu in the New Tracks dialog, press **Command** (Mac) or **Control** (Windows) and use the Up/Down Arrow keys.


- 3 Select the track format (mono, stereo, or one of the multichannel surround formats) from the Track Format pop-up menu. Surround formats are only available with Pro Tools HD or Pro Tools with the Complete Production Toolkit option.

 To auto-scroll the Track Format pop-up menu, press **Command** (Mac) or **Control** (Windows) and use the Left/Right Arrow keys.

- 4 Select the timebase (samples or ticks) from the Track Timebase pop-up menu.


 To auto-scroll the Track Timebase pop-up menu, press **Command+Option** (Mac) or **Control+Alt** (Windows) and use the Up/Down Arrow keys.


- 5 Enter the number of new tracks.

 If you are creating various multiple new tracks, you can move to the next or previous row's Number of New Tracks field by pressing **Tab** or **Shift+Tab**.

- 6 Do any of the following:

- To add more tracks, click the Add Row button.
- To remove a track, click the Remove Row button.

 To add a new track, press **Command+N** (Mac) or **Control+N** (Windows), or press **Command+Plus (+)** (Mac) or **Control+Plus (+)** (Windows) on the numeric keypad.

 To remove the last track from the New Tracks dialog, press **Command+Minus (-)** (Mac) or **Control+Minus (-)** (Windows).

- 7 To reorder tracks, drag a Move Row icon up or down.



Move Row icon in the New Tracks dialog

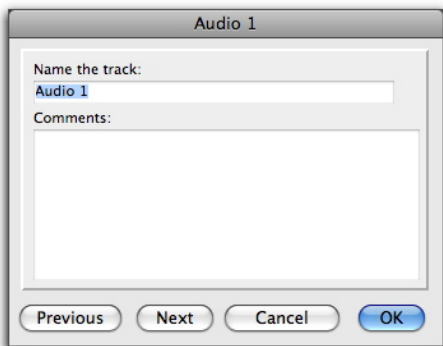
- 8 Click Create.

Default Track Names

When creating new audio, Auxiliary Input, Master Fader, VCA Master, MIDI, and Instrument tracks, Pro Tools names them as “Audio,” “Aux,” “Master,” “VCA,” “MIDI,” or “Inst” accordingly and numbers them consecutively. For example, when you create the first two audio tracks in a new session, their default names are “Audio 1” and “Audio 2.” You can rename tracks and also log comments for each track.

Naming Tracks

Track names are used to auto-name recorded audio files and clips (see “Default Track Names” on page 226).



Track Name/Comments dialog

To rename a track:

- 1 Do one of the following:
 - In the Mix or Edit window, double-click the Track Name button for the track you want to rename.
 - In the Track List, or Mix or Edit window, Right-click the track name for the track you want to rename.
- 2 In the Track Name/Comments dialog, type a new track name.

- 3 Click Previous or Next to rename other displayed tracks.



To move to the previous or next track in the Track Name/Comments dialog, you can press Control (Windows) or Command (Mac) and use the Up/Down or Left/Right Arrows.

- 4 Click OK.

Adding Comments to Tracks

To add comments to a track, do one of the following:

- From the track channel strip, click directly in the Comments area, type any comments for the track, and press Enter (Windows) or Return (Mac).
- In the Edit or Mix window, double-click the Track Name button for a track. Then click directly in the Comments area, type any comments for the track, and press Enter (Windows) or Return (Mac).



To enter a carriage return in the Comments area, press Shift+Enter (Windows) or Shift+Return (Mac) on the alphanumeric keyboard.

Track Numbering

With Track Number view enabled, each track is assigned a number corresponding to its position in the Mix and Edit Windows. When tracks are reordered, they are renumbered to maintain positional sequence.

To enable Track Number view:

- Choose View > Track Number.

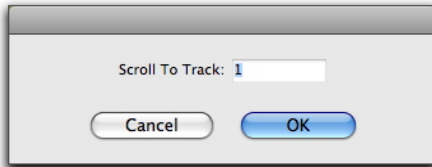
To navigate directly to any track number:

- 1 Choose Track > Scroll to Track.



Press **Command+Option+F** (Mac) or **Control+Alt+F** (Windows) to open the Scroll to Track dialog.

- 2 In the Scroll To Track dialog, enter the Track Position Number.



Scroll To Track dialog

- 3 Click OK.

The track is selected, and the windows scroll as follows:

- The Mix window tracks scroll to bring the selected track as close to the left as possible.
- The Edit window tracks scroll to bring the selected track as close to the top as possible.

Selecting Tracks

Tracks need to be selected for operations such as duplicating tracks or adding tracks to a group. One or more tracks can be selected at a time.

To select a track:

- Click the name of an unhighlighted track in its track channel strip.



selected track
unselected track

Selected and unselected tracks

To select a range of tracks:

- 1 Click the name of an unhighlighted track in its track channel strip.
- 2 Shift-click an additional button.

All tracks between the first track selected and the additional track will also be selected.

To select or deselect noncontiguous tracks, do one of the following:

- Command-click (Mac) or Control-click (Windows) Track Name buttons that are unhighlighted to select them.
- Command-click (Mac) or Control-click (Windows) Track Name buttons that are highlighted to deselect them.

To select all tracks:

- Option-click (Mac) or Alt-click (Windows) any Track Name button that is unhighlighted.

To deselect all tracks:

- Option-click (Mac) or Alt-click (Windows) any Track Name button that is highlighted.

Selecting Tracks when Making Edit Selections

Pro Tools lets you link Track selection with Edit selections. When Track and Edit selections are linked, you can make a selection within a track or across multiple tracks for editing and each associated track is selected (track names automatically highlight).

To link Track and Edit selections:

- Select Options > Link Track and Edit Selection.

Scrolling a Track into View

To scroll a track into view:

- In the Track List, or Mix or Edit window, Right-click the track name and select Scroll into View.

The track is selected, and the windows scroll as follows:

- The Mix window tracks scroll to bring the selected track as close to the left as possible.
- The Edit window tracks scroll to bring the selected track as close to the top as possible.

Deleting Tracks

When you delete tracks, your audio or MIDI clip data remains in the Clip List, but your arrangement of the clips on the deleted track (the track's playlist) will be lost.

If the track contains playlists that are not assigned to any track, you are prompted to delete or retain them.



The Delete Track command cannot be undone.

To delete a track:

- 1 Click the name of the track in its track channel strip to select it.



To select multiple tracks, Command-click (Mac) or Control-click (Windows) additional Track Names.

To select a range of tracks, Shift-click additional Track Names.


- 2 Do one of the following:
 - Choose Track > Delete.
 - In the Track List, or Mix or Edit window, Right-click the track name and select Delete.
- 3 Click OK to remove the selected tracks from the session.

Duplicating Tracks

The Duplicate Track command lets you duplicate one or more tracks, including their audio or MIDI data, playlists, automation, and other attributes.

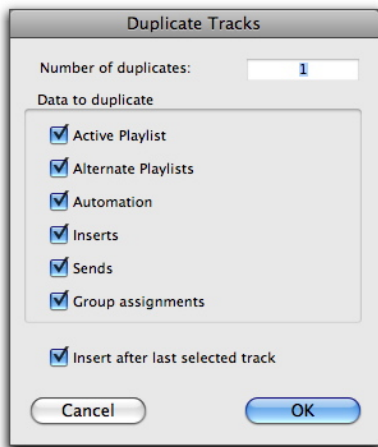
To duplicate one or more tracks:

- 1 Select the tracks you want to duplicate.

 For information, see “Selecting Tracks” on page 227.

- 2 Do one of the following:

- Choose Track > Duplicate.
- Press Option+Shift+D (Mac) or Alt+Shift+D (Windows).
- Right-click the name of the track in the Track List, or Mix or Edit window, and select Duplicate.



Duplicate Tracks dialog

- 3 In the Duplicate Tracks dialog, configure the following options:
 - Enter how many copies you want to create in the Number of Duplicates filed.
 - To copy the currently active (visible) Edit playlist from the source track, select Active Playlist.
 - To copy all Edit playlists on the source track, select Alternate Playlists
 - To copy all automation from the source track, select Automation.
 - To copy all plug-in and insert assignments, select Inserts.
 - To copy all sends and send assignments, select Sends.
 - To maintain all Mix and Edit Group assignments, select Group Assignments.
- 4 If duplicating multiple tracks, do one of the following:
 - If you want all the newly created tracks to follow the last selected source track (to the far-right of the Mix window, and at the bottom of the Edit window), select the Insert after Last Selected Track option.
 - If you want each newly-created track to be inserted directly after its source track, deselect this option.
- 5 Click OK to duplicate tracks according to the settings in the Duplicate Tracks dialog. Click Cancel to close the dialog and not create duplicate tracks.

In the Mix window, each duplicate track is created to the right of its original track. In the Edit window, each duplicate track is created below its original track. When duplicating multiple tracks, you can also choose to have the new tracks follow the last selected track (or have each new track follow its source track).

Duplicating VCA Slave Tracks (Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

Duplicating a VCA slave track without duplicating its group assignments will coalesce any automation on the duplicate track. The coalesced duplicate plays back exactly as if it were in the VCA group. For more information, see “VCA Master Tracks” on page 939.

Track Views

The Track View determines which data is displayed and edited in the track’s playlist area. Track View data can be set to Playlists, Blocks, Analysis, Warp, Waveform, Volume, Volume Trim, Mute, Pan, Send, or an automated control or continuous controller, based on the track type and your Pro Tools system.

Audio Tracks Can be set to Blocks, Playlists, Analysis, Warp, Waveform, Volume, Volume Trim, Mute, Pan, Send controls, or any plug-in controls that are enabled for automation. By default, audio tracks are set to Waveform view where track material is graphically drawn with amplitude waveforms (a time-domain representation of sound). This Track View provides the necessary detail for important clip edits.

Auxiliary Input Tracks Can be set to Volume, Volume Trim, Mute, Pan, Send controls, or any plug-in controls that are enabled for automation.

Master Fader Tracks Can be set to Volume, Volume Trim, or any plug-in controls that are enabled for automation.

VCA Master Tracks (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) Can be set to Volume, Volume Trim, or Mute.

MIDI Tracks Can be set to Blocks, Clips, Notes, Velocity, Volume, Mute, Pan, Pitch Bend, Mono After Touch, Program Change, Sysex, and any continuous controller type. MIDI tracks are commonly set to Notes or Clips, each of which displays notes in a “piano roll” format. Use Clips view to edit and arrange MIDI clips. Use Notes view for inserting and editing MIDI notes. Other MIDI track views are useful for editing velocity, controller data, program changes, and Sysex events.

Instrument Tracks Can be set to Blocks, Clips, Notes, Velocity, Volume, Mute, Pan, Pitch Bend, Mono After Touch, Program Change, Sysex, and any continuous controller type for MIDI; as well as Volume, Volume Trim, Mute, Pan, Send controls, or any plug-in controls that are enabled for automation. Instrument tracks are commonly set to Notes or Clips, each of which displays notes in a “piano roll” format. Use Notes view for inserting, editing, and copying and pasting MIDI notes. Use Clip view to arrange, capture, or consolidate clips. Other Instrument track views are useful for editing automation, controller data, program changes, and Sysex events.

Video Tracks For information on video track views, see “Video Track View” on page 1196.

Blocks Track View

With the Track View set to Blocks, audio and MIDI clips are displayed as empty blocks bearing the clip’s name. This Track View is most useful once you have finished capturing and editing clips at the waveform or MIDI event level and are moving and rearranging them. Screen redraws are fastest with this format.

Playlists Track View (Audio Tracks Only)

With the Track View set to Playlists, alternate playlists for audio tracks are revealed in Playlist lanes under the Main Playlist on the track. This view is useful for track composing, letting you select the best parts from a track's alternate playlists and copy them to the main playlist.

Analysis and Warp Track View (Audio Tracks Only)

With the Track View set to Analysis or Warp, you can edit Elastic Audio analysis and warp markers on Elastic Audio-enabled tracks.

Waveform View (Audio Only)

With the Track View set to Waveform, you can edit and arrange audio clips on audio tracks. Waveforms are time-domain representations of the audio data and can be shown as normal or rectified waveforms, and calculated using Peak or Power mode.



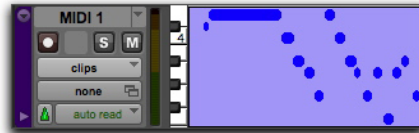
Track View set to Waveform for audio track



On audio tracks, the Waveform is also visible in Playlists, Analysis, Warp, and Automation views.

Clips View (MIDI Only)

With the Track View set to Clips, you can edit and arrange MIDI clips on MIDI and Instrument tracks.



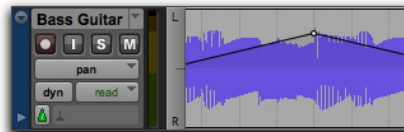
Track View set to Clips for MIDI track

Notes View (MIDI Only)

With the Track View set to Notes, you can insert and edit MIDI notes on MIDI and Instrument tracks.

Automation and Controller Views

When an audio or Instrument track is displayed as Volume, Pan, or another automated control, or when a MIDI or Instrument track is set to one of the continuous controller types (such as Volume or Pitch Bend), the data for that track appears in the form of a line graph with a series of editable breakpoints. The breakpoints can be dragged to modify the automation data, and new breakpoints can be inserted with the Pencil tool or a Grabber tool. MIDI and Instrument tracks also provide Velocity view for editing MIDI velocities.



Track View set to Pan for audio track

For details on inserting and editing controller data for MIDI tracks, see “Continuous Controller Events” on page 694.

You can also edit automation and controller data in lanes below the track’s main playlist view. For details on editing automation data for audio tracks, see Chapter 44, “Automation.”

Setting Track Views

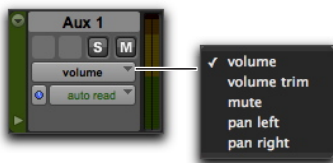
To set the Track View:

- Click the Track View selector for the track and select the view from the pop-up menu.

The track displays the new view. If the track is part of an active Edit Group, all tracks in the group are set to the new view.



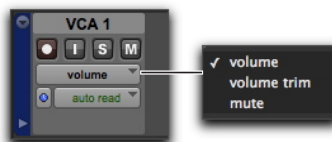
Audio Track View selector



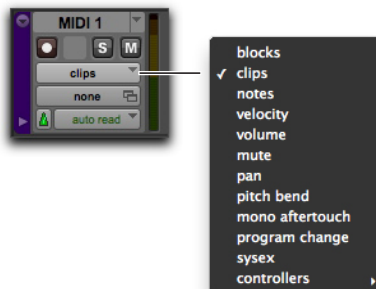
Auxiliary Track View selector



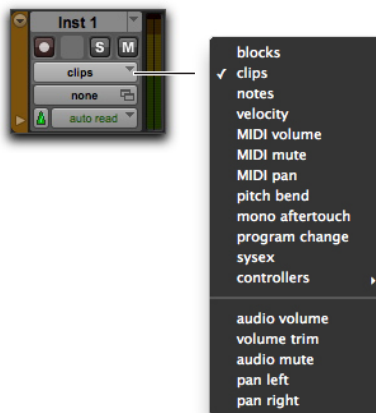
Master Fader Track View selector



VCA Master Track View selector (Pro Tools HD and Pro Tools with Complete Production Toolkit only)



MIDI Track View selector




Instrument Track View selector

Changing Track Views

For audio, Auxiliary Input, MIDI, and Instrument tracks, you can change to the next or previous Track View, or toggle between pre-defined common views.

Changing to Previous or Next Track View

When changing to the next or previous Track View, Track View list ordering is maintained as shown in the Track View selector.

 *Track Views at the beginning of the list (such as Blocks for audio or MIDI tracks) cannot be changed to the previous Track View. Tracks Views at the end of the list (such as a MIDI controllers option) cannot be changed to the next Track View.*

To change to the previous or next Track View:

- 1 Click in the track you want to change. To change views on multiple tracks, Shift-click or drag the Selector tool to select additional tracks, or select a group.
- 2 Do one of the following:
 - To change to the previous or next Track View on all selected tracks, press Control+Command (Mac) or Control+Start (Windows) and the Left or Right Arrow key.
 - To change to the previous or next Track View on all tracks, press Command+Option+Control (Mac) or Control+Alt+Start (Windows) and the Left or Right Arrow key.

Toggling Common Track Views

The most common editing view for audio tracks are Waveform and Volume view. The most common editing views for MIDI and Instrument tracks are Notes and Clips view. Pro Tools provides an easy way to toggle these views.

To toggle Track Views on tracks containing the edit cursor (or an Edit selection):

- 1 Click in the track you want to toggle. To toggle multiple tracks, Shift-click or drag with the Selector tool to select additional tracks.
- 2 Do one of the following:
 - Press Start+Minus (Windows) or Control+Minus (Mac) on the alphanumeric keyboard.
 - With Commands Keyboard Focus enabled (see “Keyboard Focus” on page 30), press Minus on the alphanumeric keyboard.



To toggle Track Views for all tracks, press Option+Control+Minus (Mac) or Alt+Start+Minus (Windows) on the alphanumeric keyboard.



To toggle Track Views for all tracks with Command Focus enabled, press Option+Minus (Mac) or Alt+Minus (Windows) on the alphanumeric keyboard.

Audio tracks are toggled between Waveform and Volume view. MIDI and Instrument tracks are toggled between Notes and Clips view.

Master Views for Tracks

Audio, MIDI, and Instrument tracks have Track Views that act as “master.” When a track is displayed in its Master view, any edits performed apply to all data in the track. For instance, when an audio track is set to Waveform, copying and pasting affects not just the waveform information, but all of the automation data as well.

The Master view is based on the type of track, as follows:

- Audio tracks: Waveform and Blocks
- MIDI and Instrument tracks: Clips, Blocks, and Notes (when using the Selector tool)

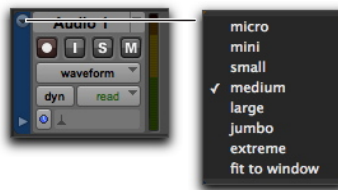
Track Height

Tracks can be viewed in the Edit window at any of eight heights: Micro, Mini, Small, Medium, Large, Jumbo, Extreme and Fit To Window. Larger track heights are particularly useful for precise editing, especially for MIDI. Smaller track heights are useful for conserving screen space in a large session.

You can adjust track heights on an individual track basis or set all tracks to the same height. Track heights can be changed during playback.

To set the Track Height, do one of the following:

- Click the small arrow to the left of the Track name to get the Track Height pop-up menu.



Track Height pop-up menu

- Right-click on the vertical zoom scale just to the right of the track controls and choose the height from the pop-up menu.

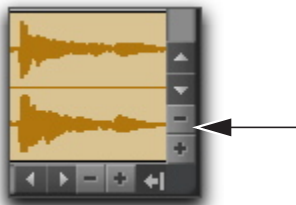
The track is resized to the new height. If the track is part of an Edit Group, all tracks in the group are set to the new height.



Press Control+Up/Down Arrow key (Mac) or Start+Up/Down Arrow key (Windows) to increase/decrease track height of any track that contains a selection or in which the edit cursor is currently placed.

To resize all tracks proportionally:

- Click Edit window Vertical Zoom In or Out button.



Vertical Zoom In and Out buttons, Edit window

Continuously Variable Track Height

In the Edit window, you can continuously resize the Track Height of any given track by dragging the lower boundary of the Track Controls column.


To resize the Track Height of any track in the Edit window:


- Drag the bottom line of any given track's Track Controls column up or down. The cursor changes to indicate that you can resize the track.


The track's Track Height changes incrementally.



Adjusting the Track Height of an audio track

 *Hold Command (Mac) or Control (Windows) while adjusting track height for continuous, non-incremental adjustments.*

 *To continuously resize all tracks, Option-drag (Mac) or Alt-drag (Windows).*

 *To continuously resize all selected tracks, Option-Shift-drag (Mac) or Alt-Shift-drag (Windows).*

Track Controls and Track Height

The Track Height affects how the various track controls appear in the Edit window. For instance, when a track's height is set to Small, most of the buttons are reduced in size.



Track Height set to Small

When the Track Height is set to Mini or Micro, only controls for Record, Solo, and Mute appear, and the menus for Playlist, Track Timebase, Track Height, and Track View are accessed from the same selector.



Track Height set to Mini

When the Track Height is set to Medium, Large, Jumbo, or Extreme, all track controls are displayed at their full size.



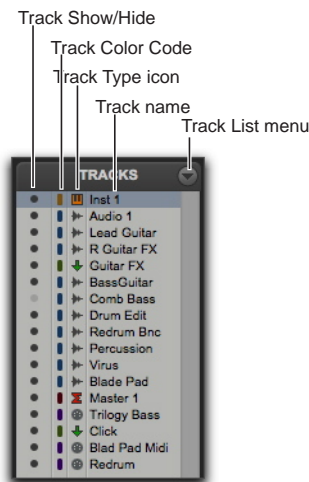
Track Height set to Large

Track List

The Track List (at the left of both the Mix and Edit windows) shows all tracks in the session. It allows you to show or hide a track in the Mix, Edit, MIDI Editor, and Score Editor windows. Even though a track is hidden, the material on the track will still play as part of the session. Inactive tracks appear in italics in the Track List.



The Track List can also be used to create new tracks when importing media from DigiBase. See “Importing Files with Drag and Drop” on page 339.

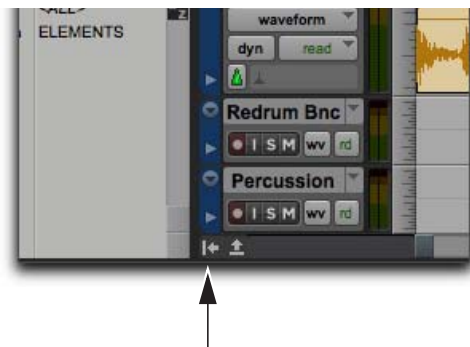


Track List

Show/Hide Track List and Group List

To show (or hide) the Track List (and Group List), do one of the following:

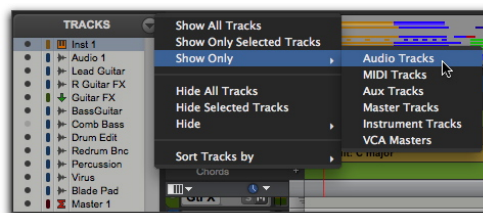
- From the Edit window menu, select (or deselect) Track List.
- Click the Show/Hide Track List/Group List View button in the Mix or Edit window.



Show/Hide Track List /Group List, in Edit Window

Track List Menu

The pop-up menu at the top of the Track List provides commands that allow you to show or hide all tracks, tracks currently selected on-screen, or specific types of tracks (audio, Auxiliary Input, Master Fader, MIDI, Instrument, VCA Master, or Inactive tracks).



Show Only option

The Sort Tracks By command lets you set the track order according to Name, Type, Edit Group, Mix Group, or Voice. The sort order will be reflected in the Track List in the Mix, Edit, MIDI Editor, and Score Editor windows.



Sort Tracks By options

When a track that is a member of an active group is hidden from view, editing operations performed on other members of the group in the Edit window will not affect the hidden track. In the Mix window, however, all operations other than record-enable will affect a hidden track that is a member of an active group.

⚠ *With Pro Tools HD, even if a track is hidden from view, its position relative to other tracks still affects its voiceable track playback priority (see “Voice Borrowing” on page 248 for details).*

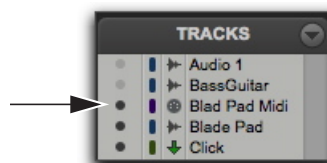
The options in the Track List menu in the Score Editor window are different from the Mix, Edit, and MIDI Editor windows. For more information, see “Track List” on page 738.

Showing and Hiding Tracks

The Mix and Edit windows are linked in terms of which tracks are shown or hidden. However, the Score Editor window and MIDI Editor windows are all unique in terms of which tracks are shown or hidden. For example, hiding a specific track in the Edit window also hides it in the Mix window, but not in the Score Editor or MIDI Editor windows. Also, hiding a specific track in a MIDI Editor window hides it only in that MIDI Editor window.

To hide a track, do one of the following:

- Click the Track Show/Hide icon in the Track List.
- In the Track List (or on the track channel strip), Right-click the track name and select Hide (or Hide and Make Inactive if the track is active and you also want to make it inactive).



Shown track icon in the Track List



Hidden track icon in the Track List

To show a track that is currently hidden, do one of the following:

- Click the Track Show/Hide icon in the Track List.
- In the Track List (or on the track channel strip), Right-click the track name and select Show (or Show and Make Active if the track is inactive and you also want to make it active).

To show all tracks:

- Click the Track List menu and choose Show All Tracks.



You can also show all tracks by Option-clicking (Mac) or Alt-clicking (Windows) the Show/Hide icon of any track that is hidden.

To hide all tracks:

- Click the Track List menu and choose Hide All Tracks.



You can also hide all tracks by Option-clicking (Mac) or Alt-clicking (Windows) the Show/Hide icon of any track that is shown.



To reorder tracks on-screen, drag the track names to new positions within the Track List or in the Mix or Edit window.

To show a range of tracks:

- 1 Select a range of hidden tracks in the Track List.
- 2 Click the Show/Hide icon of hidden track at the top of the Track List.
- 3 Shift-click the Show/Hide icon of hidden track at the bottom of the selection.

All tracks that occur between the first track selected and the last track will also be selected.



You can also select a range of tracks by moving the cursor to the left of the track names so the Marquee appears, and dragging around the track names you want to select.

To show or hide a range of tracks in the Track List with the Marquee:

- 1 Move the cursor to the left of a track name until the Marquee with a small “+” symbol appears.
- 2 Click on the track in the list and drag up or down over the Show/Hide icons (to show or hide the track and the tracks immediately above or below it).

To show or hide non-contiguous tracks:

- Click the Show/Hide icon for the tracks you want to show or hide.

Mix/Edit Groups and Hidden Tracks

In the Mix window, if a hidden track is part of an enabled group, all Mix window operations performed on other members of the group *also affect the hidden track*—with the exception of audio or MIDI record-enabling. If you solo, mute, or automation write-enable a grouped track, any group members that are hidden are soloed, muted, or automation write-enabled as well.

In the Edit window, however, editing operations performed on members of an enabled group *do not* affect hidden tracks that are also members of the enabled group.

Clipping and the Track List (Pro Tools|HD Systems Only)

When a track, send, or plug-in clips, the Track List displays the track’s name in red. Both shown and hidden tracks display clipping indication.



Pro Tools|HD systems use fixed-point processing, and as such, audio can clip. All other Pro Tools systems used floating-point processing, and as such, audio will not clip.

Track Numbering and Hidden Tracks

In the Mix and Edit windows, Track Position Numbers can either include hidden tracks in their numbering sequence, or ignore them

- When Track Position Numbers Stay with Hidden Tracks is not selected in the Display Preferences page, numbers are only assigned to tracks that are shown. In this case, active tracks are then numbered sequentially. Hidden tracks are un-numbered.
- When Track Position Numbers Stay With Hidden Tracks is selected in the Display Preferences page, tracks keep their Track Position Numbers even when hidden.

Track Name Right-Click Menu

(Mix Window, Edit Window, MIDI Editor Windows, or Track List)

When you Right-click a track name in the Mix window, Edit window, MIDI Editor windows, or the Track List, a pop-up menu provides access to the following commands:

Hide/Show Hides (or shows) the track (or selected tracks if any).

Hide and Make Inactive Hides the track and makes it inactive (or selected tracks if any).

Make Active/Inactive Toggles the active status of the track (or all selected tracks in the Mix or Edit window only).

Scroll Into View Scrolls the track to the top of the Edit window or to the left of the Mix window.

Export MIDI (MIDI and Instrument Tracks

Only) Exports the MIDI data from one or more MIDI or Instrument tracks to a standard MIDI file. For more information, see “Exporting MIDI Files” on page 354.

Coalesce VCA Master Automation (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) Coalesces the VCA automation to the slave tracks of the VCA.

Coalesce Trim Automation (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) Coalesces Trim automation on the track (or selected tracks if any).

Clear Trim Automation (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) Clears Trim automation on the track (or selected tracks if any).

Locked (Video Track Only) Toggles the locked/unlocked status of the video track (or selected video tracks if any).

New Opens the New Track dialog.

Rename Opens the Track Name dialog.

Duplicate Duplicates the track (or selected tracks if any).

Split Into Mono (Multichannel Tracks Only) Splits a multichannel track (or selected multichannel tracks if any) into their mono component tracks.

Delete Deletes the track (or selected tracks if any).

MIDI Real-Time Properties (MIDI and Instrument Tracks Only) Opens the Real-Time Properties window for the track.

Open in New MIDI Editor (MIDI and Instrument Tracks Only) Opens the track in a new MIDI Editor window.

Open in Score Editor (MIDI and Instrument Tracks Only) Opens the track in the Score Editor window.

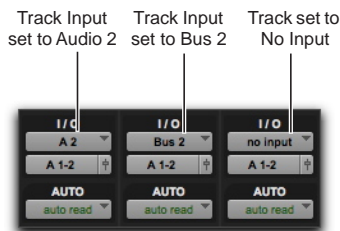
Open in MIDI Event List (MIDI and Instrument Tracks Only) Opens the track in the MIDI Event List.

Notation Display Track Settings (MIDI and Instrument Tracks Only) Opens the Notation Display Track Settings window for the track. Music notation can only be viewed in the Score Editor or in MIDI Editor windows set to Notation view.

Expand Channels to New Tracks Expands multi-channel audio files imported from a field recorder to new tracks, such that every channel resides on its own mono audio track. Pro Tools also automatically conforms all expanded tracks to the edits in the guide (expanded) track. You can expand multi-channel files to new tracks ordered by channel name, by channel number, by channel name and number, or by Timecode only.

Assigning Audio Inputs and Outputs to Tracks

Inputs for audio, Auxiliary Input, and Instrument tracks can be assigned to audio interface channels or busses. Outputs for audio, Auxiliary Input, Master Fader, and Instrument tracks can also be assigned to audio interface channels or busses.



Input/output assignments for three mono audio tracks

For stereo and multichannel surround tracks, inputs and outputs appear as stereo pairs and multichannel groups. The available inputs, outputs, and busses are defined as *paths* in the I/O Setup dialog (see Chapter 7, “I/O Setup”).

Automatic Input and Output Assignments

When adding tracks to a new session, inputs are automatically assigned in ascending order. For example, if you have an audio interface with eight inputs, creating four new mono audio tracks will automatically add four audio tracks with inputs assigned to the first four paths defined in the I/O Setup dialog. When creating stereo tracks, inputs are automatically assigned to subsequent input pairs.

The outputs automatically assigned to new tracks are determined by the New Track Default Output Bus specified in the I/O Setup dialog.

Assigning Audio Inputs (Audio, Auxiliary Input, and Instrument Tracks)

To assign an audio input of an audio, Auxiliary Input, or Instrument track:

- 1 In order to assign audio track inputs in the Edit window, select View > Edit Window > I/O.
- 2 In the Mix or Edit window, click the track’s Input Path selector and choose from the available audio interface channels and busses. Stereo and multichannel surround tracks have inputs available as pairs and multichannel groups.

The Input Path selector lets you route any audio input or any of the Pro Tools internal busses to an audio, Auxiliary Input, or Instrument track. The choices available in this pop-up menu are determined by the Input Path configuration in the I/O Setup. Inputs in use by another track appear bold in the Input Path selector pop-up menu.



Instrument tracks automatically assign the audio output from the instrument plug-in inserted on the track to the track audio Input.

To automatically assign all track inputs (of the same type and channel width) to unique ascending Input paths (cascading):

- Command-Option-click (Mac) or Control-Alt-click (Windows) the Input Path selector of the left-most Input Path selector and select the first Input Path (mono or stereo, depending on whether your tracks are mono or stereo).

All visible tracks of the same channel width (mono or stereo) are auto-assigned to unique Input Path assignments in ascending order. For example, Track 1 to A1, Track 2 to A2, Track 3 to A3, and so on.



Input Path selector

To remove an input assignment:

- Select No Input from the Input Path selector.

Assigning Audio Outputs (Audio, Auxiliary Input, Master Fader, and Instrument Tracks)

To assign an audio output of an audio, Auxiliary Input, Master Fader, or Instrument track:

- 1 In order to assign audio track outputs in the Edit window, select View > Edit Window > I/O.
- 2 In the Mix or Edit window, click the track's Output Path selector and choose from the available audio interface channels and busses. Stereo and multichannel surround tracks have outputs available as pairs and multichannel paths.



Output Path selector

The Output Path selector lets you route a track to any configured audio output or internal bus. The choices available in this pop-up menu are determined by the Output Bus Path configuration in the I/O Setup. Outputs in use by another track appear bold in the Output Path selector's pop-up menu.



Command-Option-click (Mac) or Control-Alt-click (Windows) the Output Path selector of the left-most track and select the first Output Path (mono or stereo). All visible tracks are automatically assigned to unique Output Bus Path assignments in ascending order. For example, Track 1 to A1–2, Track 2 to A3–4, Track 3 to A5–6, and so on.

To remove an output assignment:

- Select No Output from the Output Path selector. Playlists become dimmed for tracks with no output assignment.

⚠ *Assigning an audio track, Auxiliary Input, Master Fader, or Instrument track to “No Output” will cause its automation data for pan and plug-in controls to be lost.*

Create and Assign New Track from Track Output

Pro Tools lets you create a new Auxiliary Input, Audio, or Instrument track from the Output selector and automatically assign the Output of the original track to the Input of the new track using an available internal mix bus.

To create a new track from a track output:

- 1 On an existing track, click the Output selector for the track and select New Track.
- 2 In the New Destination dialog, select the Width, Type, and Time Base for the new track.



New Destination dialog

- 3 Type a Name for the new track.
- 4 Select (or deselect) whether you want the new track to be created next to the current track.
- 5 Click OK.

Pro Tools creates a new track with the output of the originating track automatically routed to the input of the new track using an available internal mix bus.

When creating a new internal mix bus, the new bus will be named after what you typed for the new track. For example, if you entered the name “Drum Sub,” Pro Tools creates a new Auxiliary Input track named “Drum Sub” and also creates an internal mix bus named “Drum Sub.”



New Auxiliary Input track with audio track output automatically assigned to Bus 1–2

Assign Existing Track from a Track Output

Pro Tools lets you assign the Output of a track to the Input of an existing track using an available internal mix bus. Note that the destination track must be set to either an internal mix bus or to No Input in order to be available for assignment.

To assign the output of a track to an available input on an existing track:

- 1 On an existing track, click the Output selector for a track and select Track.
- 2 From the Track submenu, select the destination track you want.



Assigning a track output to an existing Auxiliary Input track

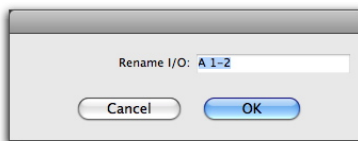
Pro Tools automatically routes the track or send to the input of the selected track using an available internal mix bus.

Renaming Track Inputs and Outputs from the Edit or Mix Window

I/O path names can be renamed in the Edit or Mix windows, or in the I/O Setup.

To rename an I/O path in the Edit or Mix window:

- 1 In the Edit or Mix window, Right-click the Input selector or Output selector for a track, and choose Rename from the pop-up menu.
- 2 In the Rename I/O dialog, type a name for the I/O Path, and click OK.




Rename I/O dialog

Making Track Inputs and Outputs Inactive from the Edit or Mix Window

Track Input, Output, and Bus Path assignments can be made inactive using the corresponding selector on the track. Making a track's Input or Output inactive silences that Input or Output, while retaining all automation and playlist data. For Avid HDX and Pro Tools|HD systems, inactive Inputs and Outputs do not consume resources for DSP mixer connections, but any active assigned plug-ins on the track continue to use their required DSP resources. For Pro Tools host-based systems, inactive Inputs and Outputs do not consume host-processing resources. Host-based, or “Native” plug-ins (AAX and RTAS) require CPU resources, and DSP-based plug-ins (AAX and TDM) use the DSP available on Avid HDX or Pro Tools|HD cards.

You can make track inputs and outputs inactive (or active) directly from the Edit or Mix windows. Inactive I/O Paths are grayed out.

 *You can also make a path globally inactive (or active) in the I/O Setup dialog. See “Making Paths Active or Inactive” on page 112.*

To make a track’s Input or Output Path inactive (or active), do one of the following:

- In the Edit or Mix window, Right-click the Input selector or Output selector for a track, and choose Make Inactive (or Make Active) from the pop-up menu.
- Command-Control-click (Mac) or Control-Start-click (Windows) the Input or Output selector in the Mix or Edit window.

To make all tracks’ Inputs or Outputs assigned to the same path inactive (or active), do one of the following:


- In the Edit or Mix window, Option-Right-click (Mac) or Alt-Right-click (Windows) the Input selector or Output selector for a track, and choose Make Inactive (or Make Active) from the pop-up menu.
- Command-Option-Control-click (Mac) or Control-Alt-Start-click (Windows) the Input or Output selector in the Mix or Edit window.

To make all selected tracks’ Inputs or Outputs assigned to the same path inactive (or active), do one of the following:

- In the Edit or Mix window, Option-Shift-Right-click (Mac) or Alt-Shift-Right-click (Windows) the Input selector or Output selector for a track, and choose Make Inactive (or Make Active) from the pop-up menu.
- Command-Option-Control-Shift-click (Mac) or Control-Alt-Start-Shift-click (Windows) the Input or Output selector in the Mix or Edit window.

Toggling Multiple Paths

If a track has only one main output assignment, Command-Control-click (Mac) or Control-Start-click (Windows) the track’s Output Path selector to toggle the main output to inactive. When there are multiple assignments, the track selector will be displayed for you to specify the Input, Output, Insert, or Bus Path.

 *If a Send (A–J) has multiple Output Path assignments and one of those is toggled active or inactive, then all of the Output Path assignments for that Send (A–J) are toggled active or inactive.*

Track Priority and Voice Assignment

Track priority and voice assignment are dependent on your Pro Tools hardware and software configuration.

Pro Tools|HD and HDX provide a certain number of voices (simultaneous channels of audio playback and recording), depending on the number of cards in the system. For example, a Pro Tools|HD 1 system can provide up to 96 voices of audio playback and recording, at 44.1 or 48 kHz. For details on Pro Tools system capabilities, see “Playback, Recording, and Voice Limits with Pro Tools HD” on page 49.

Pro Tools systems let you play or record up to 96 simultaneous stereo or mono tracks. For details on system capabilities, see “Pro Tools Capabilities with Different Hardware Configurations” on page 44.

Track Priority

While your Pro Tools hardware allows a fixed number of voices, Pro Tools software allows for additional audio tracks beyond that fixed number of voices. While all of these tracks can be recorded to or imported, arranged, and cued for playback, not all of them can be played back simultaneously.

When the number of tracks exceeds the number of available voices, tracks with lower priority may not be heard. For these situations, Pro Tools assigns priorities to tracks that compete for the available voices. Because there can be more tracks than available voices, Pro Tools provides multiple ways of adjusting the playback priority of audio tracks. See “Changing a Track’s Playback Priority” on page 245 and “Freeing up Voices on a Track” on page 245.

With Pro Tools|HD systems, you can assign specific voices to multiple tracks such that those voices are shared by more than one track. This feature is called *voice borrowing*. The combination of playback/record tracks and shared voiced tracks comprises the total number of *voiceable tracks* available on a Pro Tools|HD system.

To set multiple tracks to the same voice, see “Setting Voice Assignment” on page 246. For additional information on voice borrowing, see “Voice Borrowing” on page 248).

Changing a Track’s Playback Priority

Tracks with higher positions (leftmost in the Mix window or topmost in the Edit window) have priority over tracks in lower positions in a session.

To increase a track’s priority, do any of the following:

- In the Mix window, drag the Track Name button to the left of other tracks in the session. Tracks at the left of the Mix window have higher priority than those on the right.
- In the Edit window, drag the Track Name button above other tracks in the session. Tracks at the top of the Edit window have higher priority than those below.
- In the Track List, drag the Track Name to a higher position in the list. Tracks at the top of this list have higher priority than those below.

Freeing up Voices on a Track

You can also adjust the relative priority of tracks by freeing up the voices of individual tracks, making them available to other tracks in the session.

To free up the voice of a track, do one of the following:

- Click the Voice selector of the track and set it to Off. See “Setting Voice Assignment” on page 246.
- Deactivate the track by Control-Start-clicking (Windows) or Command-Control-clicking (Mac) its track type icon in the Mix window.
- Make sure the track does not have an Output Path or Send assignment.
- With Pro Tools|HD systems, you can temporarily free a track’s voice during playback by muting it (see “Mute Frees Assigned Voice” on page 254).

Setting Voice Assignment

A track's voice assignment can be turned off or set to be dynamically allocated, and with Pro Tools|HD systems, can also be explicitly assigned to a specific voice number.

On all Pro Tools systems, you can use Dynamically Allocated Voicing to automatically take care of voice management in the background, assigning voices not in use by other tracks.

! *Pro Tools supports Dynamically Allocated Voicing only; it does not support explicit voice assignments.*

With Pro Tools|HD systems, tracks assigned to a specific voice number take priority over dynamically allocated tracks and support voice borrowing (see “Voice Borrowing” on page 248). To ensure that a track is heard, or that it is available for QuickPunch, TrackPunch, or DestructivePunch recording, assign an explicit voice to that track.

! *With Pro Tools HD, QuickPunch, TrackPunch, and DestructivePunch require additional voices. For more information, see Chapter 23, “Punch Recording Modes.”*

! *With Pro Tools|HD and HDX, the initial insert of a Native (host-based) plug-in uses additional voices in certain situations. See “Voice Usage and Total Latency for Native (Host-Based) Plug-Ins” on page 988.*

For stereo and multichannel tracks, voices appear in pairs and multichannel groups. Voices already explicitly assigned to another track appear in bold in the Voice selector's pop-up menu.

To set the voice assignment for a track:

- Click the Voice selector and set the track to Dyn, Off, or select a voice number (Pro Tools|HD systems only).



Voice selector for stereo audio track (Pro Tools|HD system shown)

! *Elastic Audio and RTAS plug-ins are not allowed on explicitly voiced tracks (Pro Tools|HD systems only). Use Dynamically Allocated Voicing for tracks on which you want to use Elastic Audio or RTAS plug-ins.*

Voice Assignment with Complete Production Toolkit


Complete Production Toolkit lets you play or record up to 256 voices simultaneously at 44.1 or 48 kHz and up to 128 voices at 88.2 or 96 kHz. Each channel of an audio track uses a single voice. For example, you can have up to 256 mono audio tracks or up to 128 stereo audio tracks at 44.1 or 48 kHz.

Maximum track counts are only supported with multiple hard drives and faster Avid-qualified systems.

Track Priority and Dynamic Voicing

The lowest-numbered (highest priority) audio tracks that are active *and* have their voice assignment set to DYN (Dynamically Allocated Voicing) are the tracks that play back. (The total number of tracks that play back depends on the maximum number of voiced audio tracks allowed by your system.)

Tracks that are higher-numbered (lower priority) than these tracks do not play back and you cannot record to them. Their Dynamically Allocated Voicing button are blue to indicate they are unavailable for playback or recording.

 *Tracks do not play back when they are inactive or their voice assignment is set to Off.*

When working with more than the maximum number of voiced audio tracks allowed by your system, you can only play back audio from higher-numbered (lower priority) tracks by changing the track priority by doing any of the following:

- Make a lower-numbered track inactive (click the Track Name and select Track > Make Inactive).
- Set the voice assignment in a lower-numbered track to Off (click the Voice selector and select Off).
- Drag the Track Name button of the higher-numbered track to the left (Mix window) or upwards (in the Edit window or Track List) until it is in the range of the maximum number of voiced audio tracks allowed by your system. The previously last voiced audio track is moved out of range and its voice assignment is changed to Off.

When the priority of the higher-numbered track is changed, its voice assignment is automatically changed from Off to DYN.

Automatic Assignment of Ascending Voices

(Pro Tools|HD Systems Only)

You can automatically assign all tracks or all selected tracks to successive voices. For example, you may want to select eight audio tracks and reassign them to voices 9–16.

To assign all audio tracks to successive voices:

- While pressing Command+Option (Mac) or Control+Alt (Windows), select the starting voice number from the Voice selector for the track at the far left of the Mix window, or at the top of the Edit window.

The voice is assigned to the first track, with successive voices assigned to tracks (with the same format) of lower priority.

To assign all selected audio tracks to successive voices:

- 1 Select the audio tracks by Command-clicking (Mac) or Control-clicking (Windows) their names.



To select multiple tracks, Command-click (Mac) or Control-click (Windows) additional Track Names.

To select a range of tracks, Shift-click additional Track Names.

- 2 While pressing Command+Option+Shift (Mac) or Control+Alt+Shift (Windows), select the starting voice number from the Voice selector for the left (Mix window) or top (Edit window) selected track.

The voice is assigned to the starting track, with successive voices assigned to currently selected tracks (with the same format) of lower priority.

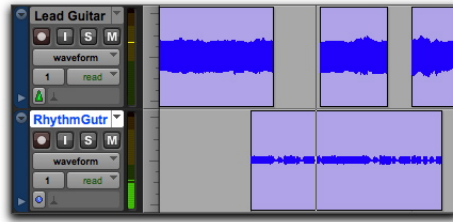
Voice Borrowing

(Pro Tools|HD Systems Only)

Pro Tools|HD systems feature *voice borrowing*, which lets you assign more than one track to the same voice. The track with the highest priority takes over that voice, but when a hole opens up in the higher-priority track, its shared voice is temporarily available, and the track with the next highest priority “sounds through” and begins to play.

When the original track returns, the track that had sounded through relinquishes the shared voice to the higher priority track.

The following example demonstrates the concept of voice borrowing:



“Rhythm” clips play only when there is no “Lead” clip

In the figure above, the two visible tracks are assigned to the same voice. There is an open area in the top track where no clip appears. At this point, the voice is free since it is not being used, and the next highest priority track assigned to that voice (the bottom track) sounds through the open area and plays.

By experimenting with track priority, voice assignment, and arranging clips so that they are positioned to sound through holes in higher priority tracks, you can find many useful ways to maximize voiceable tracks with Pro Tools|HD.


Assigning MIDI Inputs and Outputs to Tracks

MIDI recording and playback is supported with MIDI tracks and Instrument tracks.

MIDI ports in your system can be named and configured for use in Pro Tools (for Windows, see “Configuring MIDI Studio Setup” and for Mac, see “Configuring AMS”).


Assigning MIDI Track Input

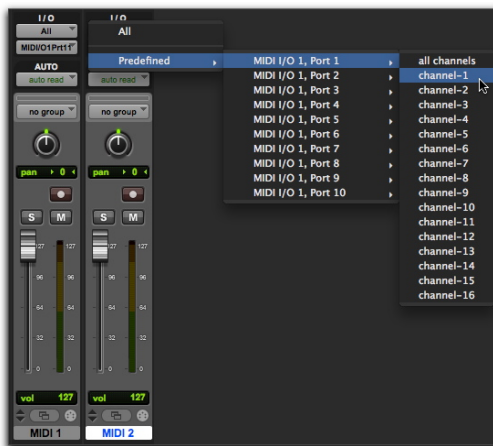
Pro Tools lets you assign specific MIDI ports and channels to a MIDI track input. The default selection of All receives all incoming MIDI data from all ports on all channels. Use the MIDI Input selector to specify a MIDI port and channel for input.

 For information on assigning MIDI input to Instrument tracks, see “Assigning MIDI Input and Output for Instrument Tracks” on page 250.

To assign a MIDI track input:

- Click the track’s MIDI Input selector and assign a port and channel for MIDI input. Channels already assigned to another track appear in bold.

 In the Edit window, select View > Edit Window > I/O to access any track’s Input selector.




MIDI Input selector (MIDI Track shown)

Assigning MIDI Track Output


Pro Tools lets you assign specific MIDI ports and channels to a MIDI track output. The default selection of none sends MIDI data to no port on any channel. Use the MIDI Output selector to specify a MIDI port and channel for output.

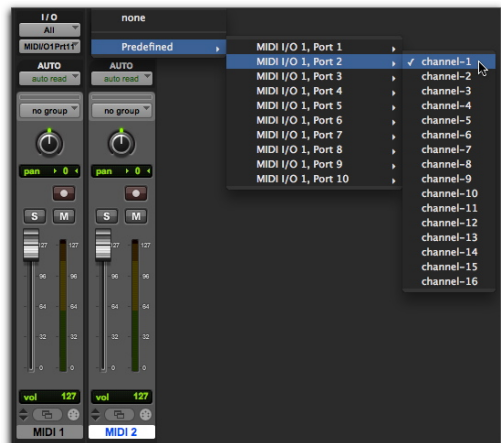
 MIDI tracks in Pro Tools cannot contain multiple channels of MIDI data.

 For information on assigning MIDI output to Instrument tracks, see “Assigning MIDI Input and Output for Instrument Tracks” on page 250.

To assign a MIDI track (and all its clips) to a specific MIDI device channel:

- Click the track’s MIDI Output selector and assign a port and channel for MIDI output. Channels already assigned to another track appear in bold.

 In the Edit window, select View > Edit Window > I/O to access any track’s Output selector.



MIDI Output selector (MIDI track shown)

To assign multiple destinations to a single MIDI track:

- Control-click (Mac) or Right-click (Mac or Windows) the MIDI Output selector and select additional channels from any device.



For information on recording and importing MIDI data, see Chapter 22, “MIDI Recording.”

Assigning MIDI Input and Output for Instrument Tracks

Instrument tracks have a specific view for MIDI controls, including MIDI Input and Output selectors.



In addition to assigning MIDI input and output for recording and playing back MIDI data, Instrument tracks can also be used to monitor the audio from your hardware MIDI instruments and instrument plug-ins. See “Signal Routing for Monitoring and Submixing” on page 964.

To view Instrument track MIDI controls, do one of the following:

- Select View > Mix Window > Instruments.
- Select View > Edit Window > Instruments.



MIDI Input selector
MIDI Output selector

Instruments view, Mix window

Instrument Track MIDI Input

Pro Tools lets you assign specific MIDI ports and channels to an Instrument tracks’ MIDI input. The default selection of All receives all incoming MIDI data from all ports on all channels. Use the MIDI Input selector to specify a MIDI port and channel for input.

Channels in use by another track input appear bold in the MIDI Input pop-up menu.

To assign an Instrument track MIDI input:

- Click the track’s MIDI Input selector and assign a port and channel for MIDI input. Channels already assigned to another track appear in bold.

Instrument Track MIDI Output

Pro Tools lets you assign specific MIDI ports and channels to an Instrument tracks’ MIDI output. The default selection of none sends MIDI data to no device, port, or node on any channel. Use the MIDI Output selector to specify a MIDI port and channel for output.

Channels in use by another track input appear as bold in the MIDI Input pop-up menu.

To assign an Instrument track MIDI output:

- Click the track’s MIDI Output selector and assign a port and channel for MIDI output. Channels already assigned to another track appear in bold.

Soloing and Muting Tracks

The Solo and Mute buttons can be engaged at any time during playback. The Solo and Mute buttons affect MIDI as well as audio tracks. It is possible to have more than one track soloed or muted at the same time in a session.



Instrument tracks have separate sets of Solo and Mute buttons for MIDI and audio monitoring.

Track grouping also affects mute and solo behavior. Muting or soloing a track that is a member of an active Mix Group will mute or solo all other tracks that are a member of that active Mix Group as well.

Soloing Tracks

To solo tracks:

- 1 Click the Solo button on a track. The button is highlighted and all other tracks are muted.
- 2 Click the Solo button on another track. The buttons for both tracks are highlighted and all other tracks are muted.

To un-solo tracks:

- Click the Solo button on soloed tracks.



For information on creating and modifying groups for track soloing and muting, see “Grouping Tracks” on page 259.

Solo Button

The Solo button normally mutes other tracks so that the selected track can be auditioned independently.

With Pro Tools HD, this behavior is selected as a Solo mode, called “Solo In Place.” Additional Solo modes are provided to change how the Solo button works. See “Solo Modes” on page 251.

Solo Modes

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

With Pro Tools HD and Pro Tools with Complete Production Toolkit, the Solo button can be used to:

- Mute other tracks so that the selected track can be auditioned alone.
- Route a selected track to a separate output.

Solo button behavior is defined by the Solo mode, as follows:


SIP (Solo In Place) The Solo button mutes other tracks. When this mode is enabled, tracks can be solo safed (see “Solo Safe Mode” on page 253).


AFL (After Fader Listen) (Pro Tools HD with Avid HDX, Pro Tools|HD, or HD Native Hardware only) The Solo button routes the track’s post-fader/post-pan signal to the AFL/PFL Path output. The AFL/PFL Path is configured in the Output page of the I/O Setup dialog (see “AFL/PFL Path” on page 98).


With AFL, the level you hear is dependent on the fader level for that track. Additionally, there is a separate master level setting for AFL that affects the output of any or all tracks you solo in AFL mode (see “AFL/PFL Path” on page 98). This level setting is independent of the PFL level setting.

PFL (Pre Fader Listen) (Pro Tools HD with Avid HDX, Pro Tools|HD, or HD Native Hardware only) The Solo button routes the track's pre-fader/pre-pan signal to the AFL/PFL Path output. The AFL/PFL Path is configured in the Output page of the I/O Setup dialog (see "AFL/PFL Path" on page 98).

With PFL, the fader level and pan are ignored, and the level you hear is dependent on the signal's recorded level. Additionally, there is a separate master level setting for PFL that affects the output of any or all tracks you solo in PFL mode (see "AFL/PFL Path" on page 98). This level setting is independent of the AFL level setting.


 *AFL and PFL Solo modes require the Surround Mixer plug-in.*

 *Custom Pan Depth settings are unavailable when either AFL or PFL Solo mode is enabled.*

 *If Mutes Frees Assigned Voice is enabled, muted tracks will not be audible in PFL mode.*

To select a Solo mode:

- 1 Choose Options > Solo Mode.
- 2 Select SIP, AFL, or PFL.

 *The Solo mode for all soloed tracks can be changed from any Solo mode to either SIP or AFL. Previously soloed tracks will switch their solo behavior to the new mode.*

Switching the Solo mode for all soloed tracks to PFL clears all previously soloed tracks before entering PFL mode. This prevents potentially large boosts in level.


DSP Usage when Using AFL or PFL Mode

AFL and PFL are accomplished by Pro Tools creating a "behind the scenes" mixer to route the signal to the chosen AFL/PFL Path. Depending on the size of your main mixer, Pro Tools will devote a substantial portion of its available DSP when using AFL/PFL mode.

Un-declaring the AFL/PFL Path will free up all DSP resources previously used for AFL/PFL mode.

Using AFL/PFL on Pro Tools Systems with a D-Control or D-Command

AFL/PFL is optimized for Pro Tools systems using a D-Control or D-Command control surface, where the XMON automatically switches its monitor source between the main output and the AFL/PFL output from Pro Tools.

 *For more information on using XMON and AFL/PFL, see your control surface guide.*

Using AFL/PFL on Pro Tools Systems without D-Control or D-Command

If you are not using a D-Control or D-Command control surface, your regular Pro Tools output path is not necessarily muted when you send a signal to the AFL/PFL Path. If you need the main signal to automatically mute when an AFL/PFL signal is invoked, you need to do the following:

- 1 Configure the output path for AFL or PFL soloed tracks.
- 2 Select the main output path that will mute when you solo a track in AFL or PFL mode (see "AFL/PFL Mutes (Output Path)" on page 99).
- 3 Set up your hardware to monitor both the main and AFL/PFL paths simultaneously.

When AFL or PFL is selected as a Solo mode and a track is soloed, the main output path will mute and the AFL/PFL signal will appear at the AFL/PFL Path for monitoring.

Solo Latch Options

Solos can be *latched* (where pressing subsequent buttons adds them to the soloed mix of tracks), *unlatched*, or *temporarily latched* (Pro Tools HD and Pro Tools with Complete Production Toolkit only).

To select a Solo Latch mode:

- Choose Options > Solo Mode and select from the following options:

Latch When selected, pressing subsequent Solo buttons adds them to the soloed mix of tracks.

X–OR (Cancels Previous Solos) When selected, pressing subsequent Solo buttons cancels previous solos.



To override X–OR mode and solo more than one track at a time, hold the Solo button on the first track. Subsequently pressed Solo buttons will latch.

Momentary (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) When selected, Solo buttons are not sticky. A track is soloed only when its Solo switch is held down.

With a qualified control surface, additional tracks can be soloed by pressing their SOLO switches (as long as at least one Solo button is held down). When no SOLO switch is held down, all soloed tracks will unsolo.

Temporarily Latching Solos in Momentary Solo Mode

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

To temporarily latch solos:

- 1 Choose Options > Solo Mode > Momentary.
- 2 Press the Solo button on the first track that will be soloed.
- 3 While holding the first Solo button, press additional Solo buttons. Solo buttons remain soloed as long as one Solo button is held.



As long as at least one Solo button is held, all the solos will remain latched.

Solo Safe Mode

Pro Tools lets you *solo safe* a track. This prevents the track from being muted even if you solo other tracks. This feature is useful for tracks such as Auxiliary Inputs that are being used as a submix of audio tracks, or effects returns, allowing the audio or effects track to remain in a mix even when other tracks are soloed. It is also useful to solo safe MIDI tracks so that their playback is not affected when you solo audio tracks.



AFL or PFL soloed tracks (Pro Tools HD only) cannot be solo safed.

To solo safe a track:

- Control-click (Windows) or Command-click (Mac) the Solo button on the track. This prevents the track from being muted even if you solo other tracks. The Solo button changes to a transparent color in Solo Safe mode.

To return a solo safe track to normal:

- Control-click (Windows) or Command-click (Mac) the Solo button on the track again.

Mute Button

The Mute button silences a chosen track. More than one track can be muted at one time. If Options > Mute Frees Assigned Voice (Pro Tools HD only) is enabled, muting a track will allocate its voice to the next highest priority voiceable track (assigned to the same voice).

To mute a track:

- Click the Mute button on the track.

To unmute a track:

- Click the Mute button again.

Mute Frees Assigned Voice (Pro Tools|HD Systems Only)

Selecting Options > Mute Frees Assigned Voice and muting a track disables playback of that track, and surrenders control of its voice to the next highest priority track with the same voice assignment.

⚠ *Muting a track with Mute Frees Assigned Voice enabled does not free up the voice for QuickPunch, TrackPunch, or Destructive-Punch recording.*

With this option enabled, there may be a delay (ranging in length from one to several seconds depending on the processing power of your system) between the time you mute or unmute a track and when you hear the effect on playback.

MIDI Mute

The Mute button on a MIDI track mutes MIDI data, not audio. Muting MIDI results in no MIDI data being passed to the MIDI output. On Instrument tracks, the track's Mute button mutes the audio signal and the MIDI Mute button is only available in Instruments view.



MIDI Mute button, Instruments view, Mix window

Making Tracks Inactive

Audio, Auxiliary Input, Master Fader, VCA Master (Pro Tools HD and Pro Tools with Complete Production Toolkit only), and Instrument tracks can be made inactive. Inactive tracks use no DSP or voices. Plug-Ins, sends, voices, and automation on inactive tracks are all disabled. Tracks may also be automatically made inactive if a session is opened on a system with less DSP power than the system that it was created on.

⚠ *MIDI tracks cannot be made inactive.*

To toggle a track active/inactive:

- Command-Control-click (Mac) or Control-Start-click (Windows) the Track Type indicator in the Mix window.

Playlists for inactive tracks are dimmed and track controls are grayed out.

To make one or more tracks inactive or active, do one of the following:

- Select the track and select **Track > Make Inactive/Active**.
- Right-click the Track Name in the Track List, or Mix or Edit windows and choose **Make Inactive/Active**.



To select multiple tracks, Command-click (Mac) or Control-click (Windows) additional Track Names.

To select a range of tracks, Shift-click the Track Names bounding the range of tracks you want selected.

Color Coding for Tracks, Clips, Markers, and Groups

Separate colors can be assigned to audio and MIDI clips, tracks, markers, and groups. Clips shown in Waveform and Block Views in the Edit window are drawn in color. Tracks shown in the Track List, Group List, and Mix and Edit windows have associated color bars.

Color Bars

Color coding at the track level is displayed using color bars, as follows:

Mix Window Track colors are displayed in horizontal color bars that appear above each channel strip, and below the track name.

Edit Window Track colors are displayed in vertical color bars that appear to the left of each track.

Track List Track colors are displayed in vertical color bars that appear to the left of each track name.

Group List Track colors are displayed in vertical color bars that appear to the left of each Group Name.

Default colors are automatically assigned to tracks, but you can override those colors by choosing from a color palette of 96 possible colors. For more information, see “Color Palette” on page 256.

Display Page Preferences for Color Coding

Color Coding options determine how colors are assigned to the display of tracks and clips.

To change Color Coding options:

- 1 Choose **Setup > Preferences**.
- 2 Click the **Display** tab.
- 3 Select or deselect the **Always Display Marker Colors** option.
- 4 Select the **MIDI Note Color Shows Velocity** option.
- 5 Select or deselect the **Apply Color Coding to Track Channel Strip** option.
- 6 Select a **Default Track Color Coding** option.
- 7 Select a **Default Clip Color Coding** option.
- 8 Click **OK**.

Always Display Marker Colors

This option lets you view Marker colors in the Markers ruler, regardless of the option you choose for the **Default Clip Color Coding** option.

MIDI Note Color Shows Velocity

When this option is enabled, MIDI notes display varying shades of the assigned track color in MIDI notes view in the Edit window and in MIDI Editor windows. Notes with high velocities are darker and notes with lower velocities are lighter.

Default Track Color Coding

The Default Track Color Coding options determine how colors are assigned to the display of tracks.

None Turns off default color assignment for tracks.

Tracks and MIDI Channels Assigns a color to each track in the Mix or Edit window according to its voice assignment or MIDI channel assignment.

Tracks and MIDI Devices Assigns a color to each track in the Mix or Edit window according to its voice assignment or MIDI device assignment.

Groups Assigns a color to each track according to its Mix or Edit Group ID. If groups are suspended using the Suspend Groups command, the tracks color bars are not shown.

Track Type Assigns a color to each track according to its type (audio, Auxiliary Input, Master Fader, VCA Master, MIDI, Instrument, or video).

Default Clip Color Coding

The Default Clip Color Coding options determine how colors are assigned to the display of tracks, clips in the track playlist and Clip List, and Marker Locations.

None Turns off default color assignment for clips. Clips are drawn as black waveforms or black MIDI notes on a light gray background.

Tracks and MIDI Channels Assigns a color to each clip in the Edit window according to its voice or MIDI channel assignment.

Tracks and MIDI Devices Assigns a color to each clip in the Edit window according to its voice assignment or MIDI device assignment.

Groups Assigns a color to each clip according to the Group ID of its track. If groups are suspended (using the Suspend Groups command) all clips display black waveforms or MIDI notes on a light gray background.

Track Color Assigns a clip color based on the color assigned to the track. (See “Color Palette” on page 256.)

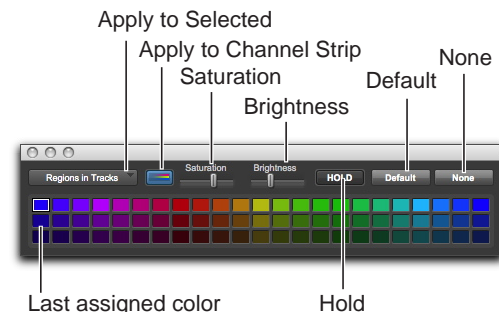
Marker Locations Assigns a unique color to each marker area in the Marker ruler, including the area preceding the first marker.

Clip List Color Assigns a color to each clip based on its color in the Clip List. When this Default Clip Color Coding option is enabled, the assigned clip color is maintained even if the clip is placed in a track set to a different color coding.

💡 *Enabling any Default Clip Color Coding option other than Clip List Color will override Clip List Color and reassign the parent track color to copies of the clip placed in tracks. Copies of the clip in the Clip List will retain their unique color.*

Color Palette

The Color Palette lets you make color selections for tracks, clips, groups and markers.



Color Palette window

The Color Palette supports independent clip color coding in the Clip List and in tracks.

To apply a color from the Color Palette:

- 1 Choose Window > Color Palette.
- 2 Do one of the following:
 - In the Apply to Selected pop-up menu, select the destination for color coding: Tracks, Marker, Group, Clips in Tracks, or Clips in Clip List.
 - Select a track, marker, group, track clip, or Clip List clip in the appropriate Pro Tools window. The Apply to Selected menu will display the type of item you have selected.



If selecting a marker does not display the Marker option in the Apply to Selected pop-up menu, then the Always Display Marker Colors option in the Display Preferences page is deselected. See “Always Display Marker Colors” on page 255 for more information.

- 3 Select a color from the palette, or select one of the following:

Default Removes any custom coloring and restores the color to the default color orientation. See “Display Page Preferences for Color Coding” on page 255 for more information.

None Turns off color assignment. Affected clips are drawn with black waveform or MIDI notes on light gray background. Affected tracks and groups no longer show their color bars.

Using the Hold Button

The Color Palette provides a Hold button to simplify the process of assigning the same colors to multiple items (such as track and clips).

By default, the Hold button is off. When off, the Color Palette automatically highlights the assigned color (if any) of items as you select them.

When the Hold button is enabled, the assigned color selected in the Color Palette persists and does not change when a different track or clip is selected.

To use the Hold button to assign the same color to multiple items:

- 1 Click the Hold button to enable it. The Hold button becomes white, and the currently selected color is now highlighted with a wider white outline.
- 2 Select additional tracks or clips to which you want to assign the same color. Because the Hold button is enabled, the Color Palette does not follow item selection; it remains (or “holds”) at the last currently assigned color.
- 3 Click the assigned color again to assign it to the new selection of tracks or clips. Use the Apply to Selected pop-up menu to determine which selected elements are affected.
- 4 To turn off Hold and return the Color Palette to its default mode, click the Hold button until it turns off.

Applying Track Color Coding to Channel Strips

The Color Palette lets you apply the Track color coding to channel strips in the Mix and Edit windows.

To apply track color coding to channel strips:

- 1 Enable the Apply to Channel Strip button.
- 2 If necessary, adjust the Saturation slider to get the color saturation you want.
- 3 If necessary, adjust the Brightness slider.



Color Coding applied to channel strips, Mix window

Chapter 14: Grouping Tracks

Pro Tools provides a relative grouping function for linking tracks and their controls.

Grouping Tracks

Groups are useful for editing several tracks in exactly the same way, or for mixing several tracks (such as a pair of stereo tracks or a submix) while keeping them at the same relative volume level.

Pro Tools provides the following grouping features:

- Up to 104 different groups are available, arranged in 4 banks of 26 Group IDs.
- Groups can be nested (subgroups within groups).
- Grouped faders or controllers preserve their levels relative to each other.
- Groups are assignable to an available VCA Master track (Pro Tools HD and Pro Tools with Complete Production Toolkit only).

Mix Groups, Edit Groups, and Mix/Edit Groups

Mix Groups only affect mixing functions and Edit Groups only affect editing. Mix/Edit Groups link the grouping functions of the Mix Group and the Edit Group.

Edit Groups

Edit Groups affect the following items in the Edit and MIDI Editor windows:

- Track View
- Track Height
- Track Timebase
- Audio and MIDI editing functions
- Automation editing functions

Mix Groups in Pro Tools HD and Pro Tools with Complete Production Toolkit

Mix Groups in Pro Tools HD and in Pro Tools with Complete Production Toolkit can be set to affect the following items:

- Main Mute
- Solo
- Send Level
- Send Mute
- Main Volume
- Main Pan
- Main LFE Level
- Record Enable
- Input Monitoring
- Automation Mode
- Send Pan
- Send LFE Level
- Plug-In Controls
- Plug-In Bypass



In Pro Tools HD and Pro Tools with Complete Production Toolkit, when the Main Pan attribute is enabled for groups, grouped behavior applies to the Link, Front inverse, Rear inverse and Front/Rear inverse controls in stereo and multichannel panner windows.

Mix Groups in Pro Tools

Mix Groups in Pro Tools always affect the following:

- Main volume
- Automation mode

Mix Groups in Pro Tools can also be set to affect the following:

- Main Mute
- Solo
- Send Level
- Send Mute

Grouping Limitations

Grouping does not affect these parameters:

- Voice assignment
- Output assignment
- Inserting plug-ins
- Elastic Audio plug-ins

Selectable Group Attributes

You can select which parameters, or *attributes*, are linked in groups by the following methods:

- By making the group an Edit Group, a Mix Group, or both (Mix/Edit Group).
- With Mix and Mix/Edit Groups, by selecting from a list of attributes for the group.
- With Mix Groups in Pro Tools HD and Pro Tools with Complete Production Toolkit only, by choosing whether the selected attributes apply globally to all groups or to individual groups.

Linking Mix and Edit Groupings

The Link Mix and Edit Group Enables option links group enabling between the Mix and Edit windows.


Pro Tools allows you to create groups that are *both* Mix and Edit Groups, but in some cases you may prefer not to link enabling of Mix and Edit Groups. For example, when you are using the Mix window for mixing, you may prefer to work with large, nested groups. However, in the Edit window or a MIDI Editor window, you may want to perform editing tasks within a smaller group. Disabling the Link Mix and Edit Group Enables preference lets you work with different groups in the two windows.

To unlink Mix and Edit Groups:

- 1 Choose Setup > Preferences and click Mixing.
- 2 Deselect the Link Mix and Edit Group Enables option.
- 3 Click OK.

Mix Groups and VCA Masters (Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

An existing Mix Group can be assigned to a VCA Master, or a new Mix Group can be assigned to a VCA Master while it is being created. Only one group can be assigned to a VCA Master at a time. A VCA Master cannot control a group that includes itself.

 For information on assigning groups to VCA Masters, see “Assigning Groups to VCA Masters” on page 941.

Group Controls

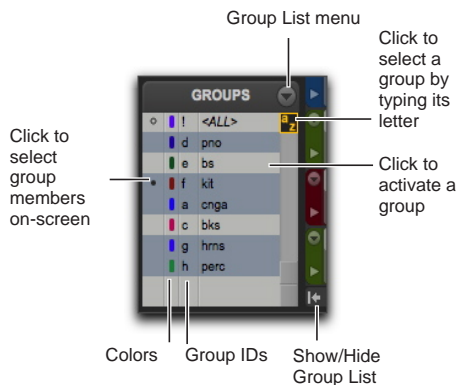
Menus and commands for creating and modifying groups are accessible in the following:

- Group List
- Group name in the Group List
- Group ID indicator on a track
- Track > Group menu

The Group List

The Pro Tools track grouping functions are located at the left side of the Mix, Edit, and MIDI Editor windows in the Group List. This scrolling window contains the names of all the groups in your session, as well as a pop-up menu for accessing grouping commands. From this menu, you can select and enable groups.

By default, every session has a group named *All*, which includes every track in the session. The *All* group cannot be edited or deleted.



Group List

Show/Hide Track List/Group List View Button

To show the Group List (and Track List):

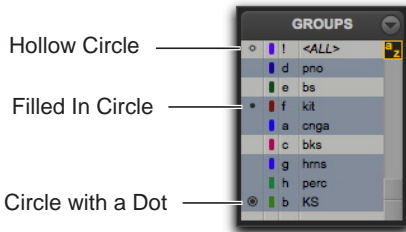
- Click the Show/Hide Track List/Group List View button in the Mix, Edit, or MIDI Editor window.

Group ID

To the left of each name in the Group List is a letter denoting its Group ID (“a” through “z”).

Group Symbols

To the left of each Group ID (“a” through “z”) is a symbol indicating whether that group is selected in the current window (either the Mix or Edit window). There are three types of Group symbols, as shown in the following figure:



Group Symbols

The Group symbols indicate the following:

Filled-in Circle Indicates that all members of the group are currently selected, and no members from outside the group are selected.

Hollow Circle Indicates that only some members of the group are currently selected.

Circle with a Dot Indicates that all members of the group are currently selected, plus additional members *outside* the group.

Group List Menu

The pop-up menu at the top of the Group List provides the following commands:

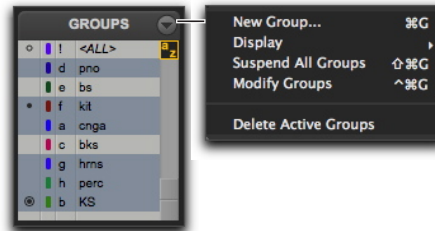
New Group Executes the Track > Group command.

Display Provides commands to show Edit groups only, Mix groups only, or all groups (Edit, Mix, and Mix/Edit).

Suspend All Groups Suspends group behavior for all Mix and Edit groups.

Modify Groups Opens Group dialog to modify existing groups only.

Delete Active Groups Deletes only currently active groups.



Group List menu

Group Name and Track Group ID Indicator Pop-Up Menus

When you click and hold on a group name in the Group List (or Right-click), or click a Group ID indicator in a track, a pop-up menu provides the following commands:

Tracks Displays track membership in group.

Attributes Displays attributes of group.

Modify Opens Group dialog to modify existing groups only.

Duplicate Opens Group dialog for duplicated group.

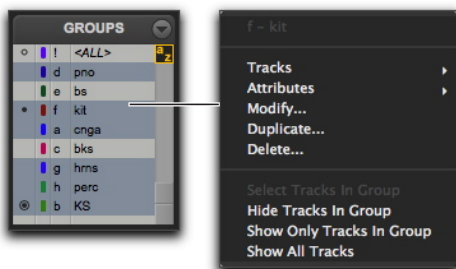
Delete Deletes a single group.

Select Tracks in Group Selects tracks in the group.

Show/Hide Tracks in Group Shows or hides tracks in the current group.

Show Only Tracks in Group Shows only the tracks in the group and hides all other tracks.

Show All Tracks Shows all tracks in the session.



Group Name pop-up menu



Group ID indicator pop-up menu

Group Dialog

Whether you are creating or modifying groups with the Group List, a track's Group ID indicator, or the Track > Group menu command, you use the Groups dialog.

The Group dialog lets you create new groups and assign attributes to groups.

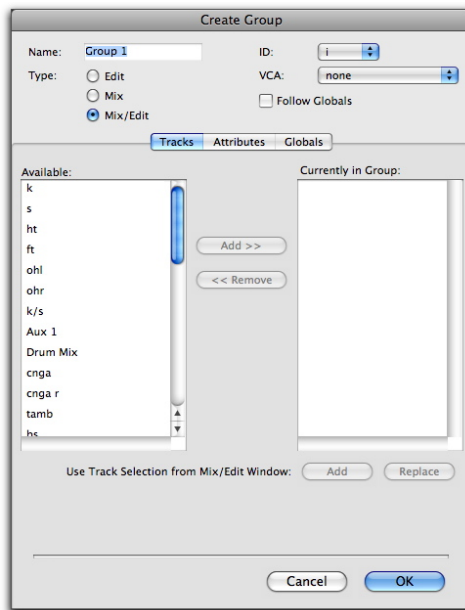
Group Dialog in Pro Tools HD and Pro Tools with Complete Production Toolkit

In Pro Tools HD and Pro Tools with Complete Production Toolkit, the Group dialog has three pages:

Tracks Lets you add and remove tracks from the current group.

Attributes Lets you select which parameters are linked for the current Mix or Mix/Edit Group.

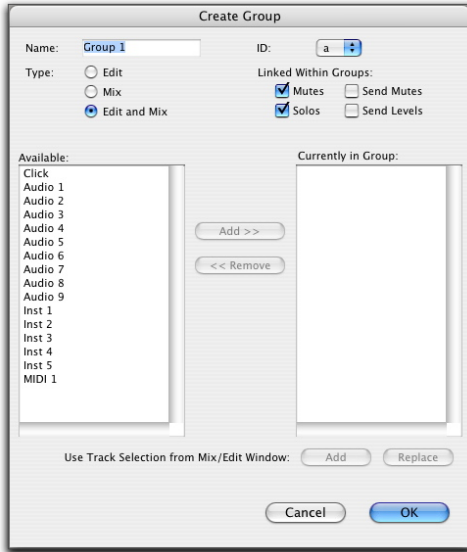
Globals Lets you select parameters to use as a template that can be applied to individual groups by selecting the Follow Globals option.



Group dialog (Pro Tools HD and Pro Tools with Complete Production Toolkit)

Group Dialog in Pro Tools

In Pro Tools, the Group dialog has a single page.



Group dialog (Pro Tools)

Working with Groups

Creating Groups

You can select the tracks you want to add to a group before creating it, or add and remove tracks from a group after it has been created.

Creating Groups in Pro Tools HD and Pro Tools with Complete Production Toolkit

To create a group in Pro Tools HD or Pro Tools with Complete Production Toolkit:

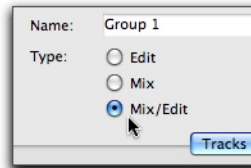
- 1 Select the tracks you want to include in the group. (If you do not select tracks at this time, you can add tracks later.)

- 2 Do one of the following:

- Choose Track > Group.
- Choose New Group from the Group List menu.

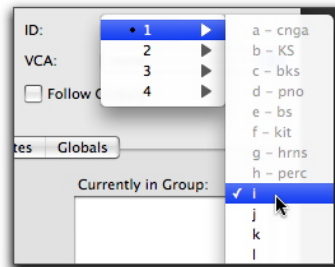
- 3 Type a name for the group.

- 4 Select the type of group to create: Edit, Mix, or Mix/Edit.



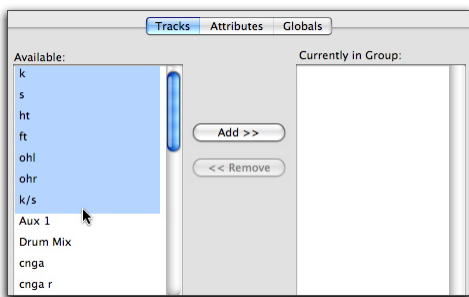
Selecting a Group Type

- 5 Choose a Group ID from the ID pop-up menu. Four banks of 26 are available: a–z, 2a–z, 3a–z, 4a–z. (If you do not choose a Group ID, Pro Tools automatically assigns the next available ID to a new group.)



Choosing a Group ID

- 6 Click Tracks in the Group dialog, and do any of the following:
 - To add the tracks that are currently selected in the session to the group, click the Add button at the bottom of the Group dialog.
 - To add tracks to the group, select the track names in the Available track list, and click Add or press A on the computer keyboard.
 - To remove tracks from the group, select the track names in the Currently In Group list, and click Remove or press R on the computer keyboard.
 - Double-click track names in either list to move them to the opposite column.
 - To replace all tracks in the group with the tracks that are currently selected in the session, click the Replace button at the bottom of the Group dialog.

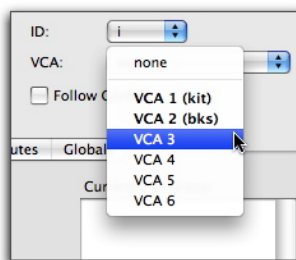


Selecting track names to add to a group



In either list, Shift-click to select a range of track names. Control-click (Windows) or Command-click (Mac) to select discontinuous track names.

- 7 If the group is a Mix Group or a Mix/Edit Group, do the following:
 - Set the Attributes for the Group (see “Setting Group Attributes” on page 268).
 - If you want to assign the group to an available VCA, select the VCA Master track from the VCA pop-up menu.



Choosing a VCA track to control a group

- 8 Click OK.


Creating Groups in Pro Tools

To create a group in Pro Tools:

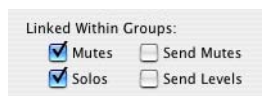
- 1 Select the tracks you want to include in the group. (If you do not select tracks at this time, you can add tracks later.)
- 2 Do one of the following:
 - Choose Track > Group.
 - Choose New Group from the Group List menu.
- 3 Type a name for the group.
- 4 Select the type of group to create: Edit, Mix, or Mix/Edit.
- 5 Choose a Group ID from the ID pop-up menu. Four banks of 26 are available: a–z, 2a–z, 3a–z, 4a–z. (If you do not choose a Group ID, Pro Tools automatically assigns the next available ID to a new group.)

6 Do any of the following:

- To add the tracks that are currently selected in the session to the group, click the Add button at the bottom of the Group dialog.
- To add tracks to the group, select the track names in the Available track list, and click Add or press A on the computer keyboard.
- To remove tracks from the group, select the track names in the Currently In Group list, and click Remove or press R on the computer keyboard.
- Double-click track names in either list to move them to the opposite column.
- To replace all tracks in the group with the tracks that are currently selected in the session, click the Replace button at the bottom of the Group dialog.

 In either list, Shift-click to select a range of track names. Control-click (Windows) or Command-click (Mac) to select discontinuous track names.

7 Select the items to be Linked Within Groups (Mutes, Solos, Send Mute, Send Levels).



Linked Within Groups options (Pro Tools)

8 Click OK.

Modifying Groups

To modify a group:

1 Do one of the following:

- Choose Modify Groups from the Group List menu.
- In the Mix window, click the Group ID indicator on a track and choose Modify from the pop-up menu.
- Right-click the Group name in the Group List and choose Modify from the pop-up menu.

2 In the Groups dialog, choose the group you want to modify from the ID pop-up menu.

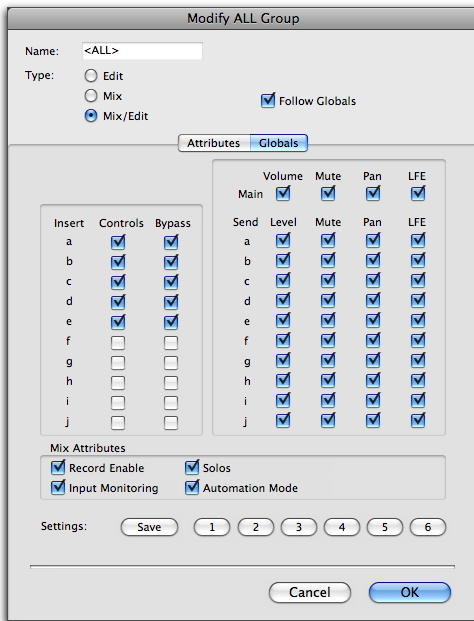
3 Change any of the following for the current group:

- Group name
- Group type (Edit, Mix, or Mix/Edit)
- VCA status (Pro Tools HD and Pro Tools with Complete Production Toolkit only)
- Follows Global status (Pro Tools HD and Pro Tools with Complete Production Toolkit only)
- Track membership
- Attributes (Pro Tools HD and Pro Tools with Complete Production Toolkit only)
- Linked Within Group items (Pro Tools HD and Pro Tools with Complete Production Toolkit only)

4 Click OK.

To modify the settings for the “All” group in Pro Tools HD and Pro Tools with Complete Production Toolkit:

- 1 Right-click the “All” group name in the Group List and choose Modify from the pop-up menu.
- 2 In the Group dialog, select Edit, Mix, or Mix/Edit to change the settings for the “All” group. If you select Edit only or Mix only, the “All” group will apply only to that Group type.



Modify ALL Group dialog

- 3 For Mix or Mix/Edit Groups, you can change any of the following:
 - Follows Global status
 - Attributes
- 4 Click OK.

To modify the settings for the “All” group in Pro Tools:

- 1 Right-click the “All” group name in the Group List and choose Modify from the pop-up menu.
- 2 In the Group dialog, select Edit, Mix, or Mix/Edit to change the settings for the “All” group. If you select Edit only or Mix only, the “All” group will apply only to that Group type.




Modify ALL Group dialog

- 3 For Mix or Mix/Edit groups, you can change any of the following Linked Within Groups options:
 - Mutes
 - Solos
 - Send Mutes
 - Send Levels
- 4 Click OK.

Deleting Groups

One or all groups can be deleted at a time.


 *Deleting a group cannot be undone.*

To delete a single group, do one of the following:

- In the Mix window, click the Group ID indicator on a track and choose **Delete** from the pop-up menu.
- Right-click the Group name in the Group List and choose **Delete** from the pop-up menu.

To delete all currently active groups

- Choose **Delete Active Groups** from the Group List menu.

 *The “All” group cannot be deleted.*

Duplicating Groups

You can duplicate a group and modify its settings in order to quickly set up a mix.

To duplicate a group:

- 1 Do one of the following:
 - Click the Group ID indicator on a track and choose **Duplicate** from the pop-up menu.
 - Right-click the Group name in the Group List and choose **Duplicate** from the pop-up menu.

- 2 Change any of the following for the current group:

- Group name
- Group type (Edit, Mix, or Mix/Edit)
- VCA status (Pro Tools HD and Pro Tools with Complete Production Toolkit only)
- Follows Global status (Pro Tools HD and Pro Tools with Complete Production Toolkit only)
- Track membership
- Attributes (Pro Tools HD and Pro Tools with Complete Production Toolkit only)
- Linked Within Group items (Pro Tools only)

- 3 Click **OK**.

Setting Group Attributes

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

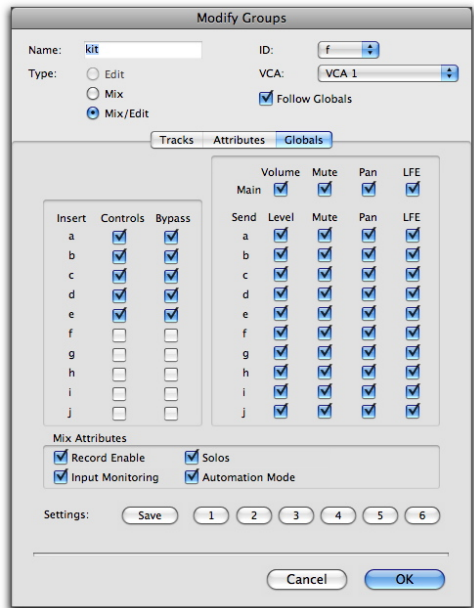
When creating a Mix Group or a Mix/Edit Group, you can select the Mix window parameters that will be linked for that group. These linked parameters are the *attributes* of the group.

You can select attributes in the Globals page and then set individual groups to follow the Global settings, or you can select attributes for groups individually.

Selecting Attributes in the Global Page


To select attributes in the Global page:

- 1 While creating or modifying a group, click Globals in the Group dialog.




Globals page of Group dialog

- 2 Select the base set of attributes for groups in your session.
- 3 Click OK to save the group and the new Globals settings.

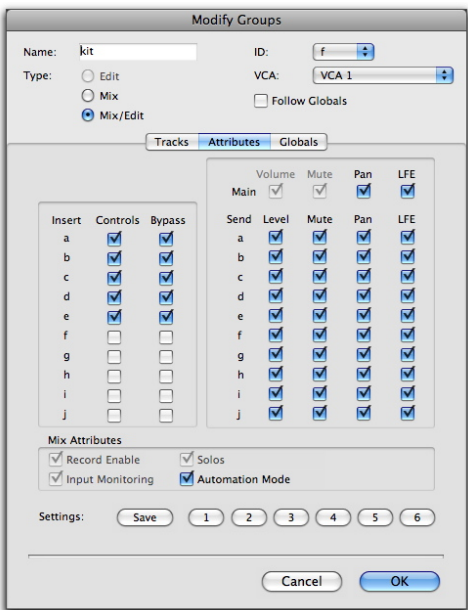
 For information on selecting attributes, see “Selecting Group Attributes” on page 270.

To select attributes for an individual group:

- 1 While creating or modifying a Mix Group or a Mix/Edit Group, do one of the following:
 - Click Attributes in the Group dialog, and select the attributes you want to link.
 - Enable Follow Globals to follow the base set of attributes. The Attributes page grays out to indicate that the group is following the selections in the Globals page.

 For information on selecting attributes, see “Selecting Group Attributes” on page 270.

- 2 Click OK to save the settings.



Attributes page of Group dialog

Selecting Group Attributes

The following attributes can be selected for Global settings and for individual groups.

Track controls:

- Main Volume
- Main Mute
- Main Pan
- Main LFE Level
- Record Enable
- Input Monitoring
- Solo
- Automation Mode

Send controls (Sends A–J):

- Send Level
- Send Mute
- Send Pan
- Send LFE Level

Insert controls (Inserts A–J):

- Plug-In Controls
- Insert Bypass

To select the attributes for a group, do any of the following:

- Select individual attributes.
- To select or deselect all attributes, Alt-Shift-click (Windows) or Option-Shift-click (Mac) any attribute.
- To select or deselect all attributes for a single Send or Insert (across a row), Start-click (Windows) or Control-click (Mac) any attribute in that row.

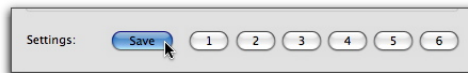
- To select or deselect attributes for a single control across all Sends, all Inserts, or for the four track controls (down a column), Alt-click (Windows) or Option-click (Mac) any attribute in that column.

Saving Group Attribute Presets

You can define six Group presets that can be recalled on either the Attributes or Globals page whenever you are creating or modifying a Mix or Mix/Edit Group.

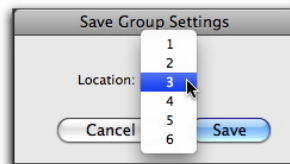
To save the current attribute settings as a Group preset:

- 1 In the Groups dialog, click Save. (Follow Globals must be deselected to save a setting from the Attributes page.)



Saving a Group preset

- 2 In the Save Group Settings dialog, select one of the six preset locations from the Location pop-up menu, and click Save.



Selecting a Group Settings Location



To save the current attribute settings directly to a preset location, Control-click (Windows) or Command-click (Mac) the preset button.

To recall a Group preset:

- Click the corresponding Preset button (1–6) in the Groups dialog. (Follow Globals must be deselected to recall a setting in the Attributes page.)



Recalling a Group preset

Enabling Groups

Editing operations are not applied to members of a group that are hidden with the Track List. Mix operations (with the exception of record-enabling of tracks) are applied to hidden tracks.

Pro Tools lets you create separate groups for editing and mixing. You set this option when you use the New Group command. Groups that apply to both editing and mixing can be decoupled.

To enable a group:

- In the Group List, click the name of the group you want to enable. The name is highlighted to indicate that it is enabled.

To enable additional groups, click their names in the Group List.

Moving a fader of a group member causes all other group members to move relative to it. If a fader belongs to multiple groups, and the groups conflict when faders are moved, the fader will follow the top-most or “parent” group to which it belongs.

To disable a group:

- In the Group List, click the name of the group you want to disable. The name is unhighlighted to indicate that it is not enabled.

Keyboard Selection of Groups

The Group List Keyboard Focus lets you type a Group ID letter to automatically toggle that group’s enable status.

- ◆ In the Mix window, the Group List Keyboard Focus is always enabled.
- ◆ In the Edit window, you need to enable the Group List Keyboard Focus to use it.

To enable the Edit Group List Keyboard Focus, do one of the following:

- Click the Keyboard Focus button in upper right of the Edit Group List.
- Press Control+Alt+3 (Windows) or Command+Option+3 (Mac).



Group List Keyboard Focus enabled

To enable and disable groups using the Edit and Mix Group List Keyboard Focus:

- With Group List Keyboard Focus enabled, type the Group ID letter (a–z) to automatically enable or disable the corresponding group.

Temporarily Isolating Control of an Item from Group Operation

You can temporarily isolate control of a group item from group operation by Right-clicking on the item.



You can also temporarily suspend group behavior for a track by Control-clicking (Mac) or Start-clicking (Windows) a group function.

The following items can be isolated from group operation:

- Pan slider (Pro Tools HD and Pro Tools with Complete Production Toolkit only)
- Channel Record Enable (Pro Tools HD and Pro Tools with Complete Production Toolkit only)
- Channel TrackInput (Pro Tools HD only)
- Send Pan slider
- Channel Volume fader
- Channel Pan slider
- Channel Mute button
- Channel Solo button
- Channel Record Enable button
- Channel TrackInput button
- Send fader
- Send Pan slider

Grouped Control Offsets

When the following controls are grouped with offsets and moved to their extremes, relative offsets are preserved when the controls are moved back from their extremes:

- Main Volume
- Main Pan (Pro Tools HD and Pro Tools with Complete Production Toolkit only)
- Send Level
- Send Pan

For example, when a grouped Volume fader is moved to its maximum value, any other faders in that group that had higher values will remember their relative offset whenever the first fader is pulled down again.

In Automation views, this “overflow” is indicated on the automation playlist by blue automation breakpoints at the extremes of the automation playlist.

Setting Group Pan Controls to Ignore Offsets

By default, offsets are preserved for grouped pan controls. In some workflows, it is desirable to have grouped pan controls match absolute values rather than preserve offsets.

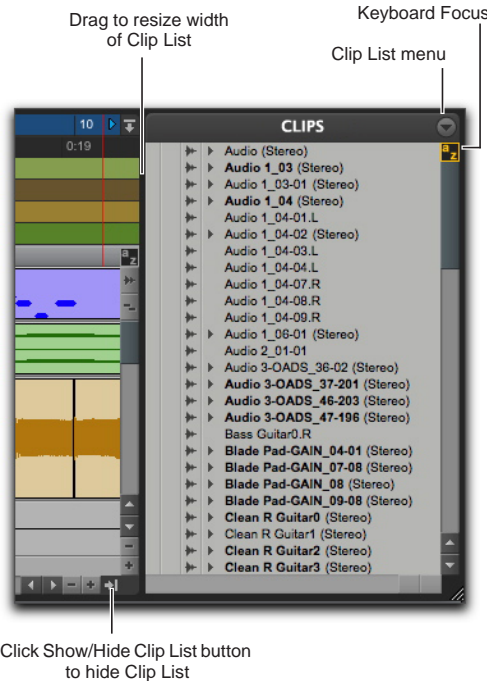
To set grouped pan controls to ignore offsets:

- 1 Choose Setup > Preferences and click Mixing.
- 2 Select the Use Absolute Pan Linking option.

When this option is enabled, grouped pan controls will snap to the absolute value of the pan control that is being adjusted.

Chapter 15: The Clip List

The Edit Window displays all audio clips, MIDI clips, and clip groups in a single, comprehensive Clip List.



Clip List

All clips of all types that are recorded, imported, or created by editing appear in the Clip List. Items can be dragged from the list to tracks and arranged in any order. You can also preview audio and MIDI clips and clip groups in the Clip List.

Because clip information can become lengthy, the Clip List can be scrolled or resized as necessary.

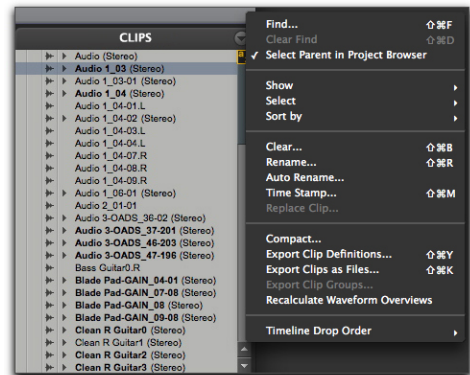
Use the Clip List as a bin for storing your favorite audio loops and MIDI clips. Save the session as a template and the clips are available for future sessions (see “Session Templates” on page 180).

Clip List Menu

The Clip List menu provides tools to search, select, sort, export, clear, and manage items in the Clip List.

To access the Clip List menu:

- In the Edit window, click the Clip List menu.



Clip List menu

Displaying Clips in the Clip List

The Clip List can show all clip types (audio, MIDI, video, Groups, Auto-Created), or only certain clip types. This is useful for isolating the type of clips you want to work with while editing and arranging. For example, when arranging clip groups, you may want the Clip List to show only clip groups.

To show or hide certain types of clips in the Clip List:

- Click the Clip List menu (at the top of the Clip List) and choose Show. From the submenu, select or deselect the clip type you want to show or hide.

Audio Shows or hides audio clips in the Clip List.

MIDI Shows or hides MIDI clips in the Clip List.

Video Shows or hides video clips in the Clip List.

Groups Shows or hides clip groups in the Clip List.

Auto-Created Shows or hides automatically-created clips (of all types) in the Clip List. These are clips that were created as a by-product of cutting, pasting, and separating other clips. Since these auto-created clips can become numerous, hiding them (by deselecting the option) helps you to avoid scrolling through an unnecessarily long Clip List.



Hiding Auto-Created clips can be useful when importing clip groups (or REX files as clip groups), because these file types can contain so many separate clips that it becomes difficult to read the Clip List.

In the Clip List, whole-file audio clips are displayed in bold, and stereo and multichannel audio clips can be expanded to display individual channels.

If the Clip List Selection Follows Edit Selection option is enabled in the Editing preferences, selecting a clip or clip group in the Clip List selects it on any track where it is present in assigned playlists. Likewise, selecting a clip or clip group on a track selects it in the Clip List.

Displaying File Info for Audio Clips

In addition to clip names, the Clip List can also display information about the clip's color coding, type (audio, MIDI, and clip group), timebase, Elastic Audio processing, and parent file:

Color Displays Track Color Coding as assigned with Default Clip Color Coding option in Display Preferences page, or as assigned in the Color Palette.

Icon Displays the icon for audio and MIDI clips, and clip groups.

Timebase Displays the timebase (samples or ticks) for audio and MIDI clips, and clip groups.

Warp Indicator Displays the Warp Indicator icon if Elastic Audio processing has been applied to the clip.

File Name Displays the parent file name.

Disk Name Displays the name of the hard drive on which referenced file resides.

Full Path Displays the full directory path of the clip's parent file.

Channel Name Displays the channel name for audio files imported from field recorders.

Scene and Take Displays the scene and take for audio files imported from field recorders.



Clips with file information shown in the Clip List

Pro Tools displays only the clip name in the Clip List by default.



When editing, the Clip List can become cluttered with auto-created clips. You can hide auto-created clips by choosing Show in the Clip List menu, and deselecting Auto-Created.

Sorting and Searching in the Clip List

Most sessions will contain many clips, which can make it challenging to swiftly locate a particular clip in the Clip List. Pro Tools lets you sort and search clips in the Clip List to quickly locate any clip you want.

Sorting Clips

To sort clips in the Clip List:

- 1 Click the Clip List menu (at the top of the Clip List) and choose Sort By.
- 2 From the submenu, select a basis for sorting. Different options are available for audio and MIDI clips. See “Sort By Options” on page 275.
- 3 To set whether clips are listed in ascending or descending order, click the Clip List menu, choose Sort By, and select Ascending or Descending.

Sort By Options

The Sort By options let you sort clips to help keep track of large numbers of clips.

Audio clips can be sorted by:

- Clip Type
- Name
- Length
- Original Time Stamp
- User Time Stamp
- Timebase
- Start in Parent
- End in Parent
- File Name
- File Length
- File Creation Date
- File Modification Date
- Disk Name (audio and clip groups only)
- Track Format/Width
- By Channel Name
- By Scene and Take

MIDI clips can be sorted by:

- Name, Length
- Original Time Stamp
- User Time Stamp
- Timebase
- Start in Parent
- End in Parent

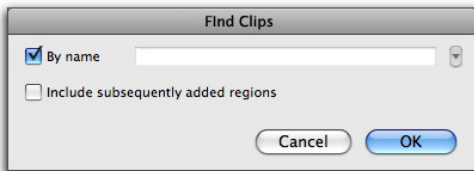
Clips can also be sorted by Clip Type (Audio and MIDI), or in Ascending or Descending order.

Finding Clips

Use the Find command to display all clips in a list whose names contain a particular word or phrase.

To find and display clips in the Clip List:

- 1 Do one of the following:
 - Click the Clip List menu and choose Find.
 - Press Command+Shift+F (Mac) or Control+Shift+F (Windows).



Find Clips dialog

- 2 In the Find Clips dialog, do any of the following:
 - Select By Name and type the name, or any portion of the name, for clips you want to find. The search string appears at the top of the Clip List.
 - Select Include Subsequently Added Clips to limit the display to newly added clips. A plus (+) sign appears at the top of the Clip List to indicate this option is selected.
 - Select both options to start with a list of named clips and allow display of added clips.



Found Clips in the Clip List

Clips of any type whose name match the word or phrase you searched are displayed in the Clip List. The search string is displayed at the top of the Clip List in brackets.

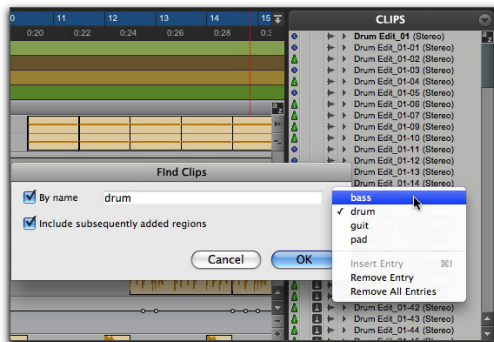


Text entered into the Find dialog is saved in a Find History, letting you quickly repeat previous searches with a minimum of retyping.

- 3 Click OK.

To repeat a previous search:

- 1 Click the Clip List menu, and choose Find.
- 2 Click the small arrow to the right of the text field in the Find dialog and select a text string from the Find History pop-up menu.



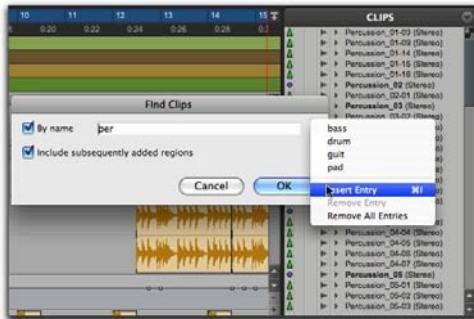
An example of a Find history

The Find History is saved with the session.

In addition to storing each text string previously entered, you can insert multiple entries into the Find History manually (without having to perform each Find in order to store words or phrases).

To compile a Find History without performing each search:

- 1 Click the Clip List menu, and choose Find.
- 2 Type the name, or any portion of the name, for the clips you want to find.
- 3 Click and hold the double arrow to the right of the text field in the Find dialog and choose Insert Entry from the pop-up menu.



Clip List while searching

- 4 Type another entry and choose Insert Entry again to add additional search strings to the history.

To remove an entry from the history:

- 1 Select it from the Find History pop-up menu so it is displayed in the text field.
- 2 Choose Remove Entry from the Find History pop-up menu.

To clear the Find History:

- Choose Remove All Entries from the Find History pop-up menu.

Selecting Clips in the Clip List

In the Clip List, you can select clips so they can be dragged to tracks, processed with AudioSuite plug-ins, or exported.

To select or deselect a clip in the Clip List, do the following:

- Click a clip name that is unhighlighted to select it.
- Click a clip name that is highlighted to deselect it.

To select a range of clips in the Clip List, do one of the following:

- Move the cursor to the left of the clip names, so the Marquee appears, and drag around the clips you want to select.



Clips selected with Marquee

- Click the name of a clip in the Clip List, and Shift-click an additional clip name.

All clips that occur between the first clip selected and the additional clip will also be selected.

To select or deselect a range of clips with the Marquee:

- 1 Move the cursor to the left of the clip name until the Marquee icon with a small “+” symbol appears:
 - To select clips, the Marquee should be to the left of an unhighlighted clip name.
 - To deselect clips, the Marquee should be to the left of a highlighted clip name.
- 2 Click on the clip name and drag up or down (to select or deselect clips immediately above or below the clip name).



To select multiple noncontiguous clips in the Clip List, hold Command (Mac) or Control (Windows) when making subsequent selections.

To select or deselect noncontiguous clips, do one of the following:

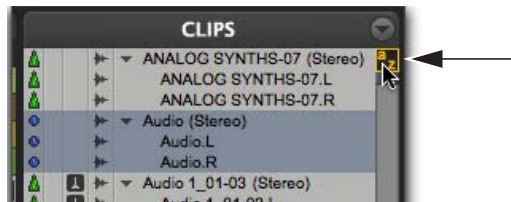
- Command-click (Mac) or Control-click (Windows) clip names that are unhighlighted to select them.
- Command-click (Mac) or Control-click (Windows) clip names that are highlighted to deselect them.

Keyboard Selection of Clips

If Clip List Keyboard Focus is enabled, you can type the first few letters of a clip’s name and Pro Tools will automatically locate and select the clip in the Clip List.

To enable and use the Clip List Keyboard Focus:

- 1 Click the Keyboard Focus button in the upper right of the Clip List.



Clip List Keyboard Focus enabled

- 2 Type the first or first few letters of the clip to automatically locate and select it. Once a clip is located and selected, it can be dragged to a track.

Keyboard selection of audio clips locates clips based on their clip name, not on the names for their parent audio files or the volumes on which they reside.

Select Options

In the Clip List, you can select specific clips so they can be dragged to tracks, processed with AudioSuite plug-ins, or exported.

To select specific clips in the Clip List:

- From the Clip List menu, choose **Select**, and then choose one of the **Select** options:

All Selects all clips in the Clip List.

Unused Selects clips that have not been placed in a track in the current session. Offline clips appear in the Clip List italicized and dimmed.


Unused Except Whole Files Selects clips that have not been placed in a track in the current session, but do not include Whole-file clips. Whole-file clips are clips that were created when recording or importing audio, consolidating existing clips, and when nondestructively processing with

an AudioSuite plug-in. Whole-file audio clips reference an entire audio file that resides on your hard drive. Whole-file audio clips are displayed in bold in the Clip List

Offline Selects clips whose parent files cannot be located, or are not available, when opening a session or importing a track. Offline clips appear in the Clip List as italicized and dimmed; they appear in playlists as light blue clips with italicized names.

Previewing Clips in the Clip List

You can preview audio and MIDI clips and clip groups in the Clip List. Previewing follows the master Audition path as selected in the Output page of the I/O Setup. The base level for previewing is determined by the Master Fader (or Auxiliary Input) level assigned to the Audition path.

 *The Preview Volume control in the Import Audio dialog also affects the preview volume when auditioning clips in the Clip List.*

To preview a clip in the Clip List:

- Option-click (Mac) or Alt-click (Windows) the clip name.

Audio clips and clip groups play back through the specified Audition Path (see “Audition Paths” on page 97).

Sample-based clips play back at their native tempo. Tick-based MIDI and Elastic Audio processed clips play back at the session tempo (based on the location of the playback cursor). You can also preview clips from the Clip List during session playback.

MIDI clips play back using the Default Thru Instrument selected in the MIDI Preferences page (see “The Default Thru Instrument” on page 479).

Auditioning Discrete Signals in Multichannel Items

In the Clip List, multichannel clips are auditioned through the Audition Path specified in the I/O Setup. Signals can be auditioned “in-place,” or through all outputs, as described below.

Audition In-Place

When auditioning a mono component of a mono component clip, the mono clip can be played from the corresponding channel of its parent mono component clip. This playback method is called *audition in-place*.

To audition in-place:

- 1 In the Clip List, make sure the stereo or multichannel clip is in expanded view (showing .L, .R, and other component channels).
- 2 Option-click (Mac) or Alt-click (Windows) the clip for the channel you want to audition.

Audition to All Outputs

When auditioning a mono component of a mono component clip, the clip can be routed equally to all outputs of the parent clip’s Audition Path.

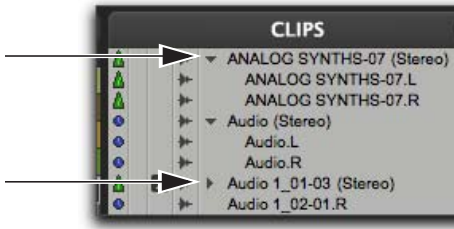
To audition through all channels of the main audition path:

- Shift-Option-click (Mac) or Shift-Alt-click (Windows) on the signal in the Clip List.

Stereo and Multichannel Clips in the Clip List

Stereo and multichannel clips, whether imported or recorded into Pro Tools, are displayed as single items in the Clip List. For example, two mono source clips named “Main Piano.L” and “Main Piano.R” are listed as “Main Piano (Stereo).” An expand/collapse triangle indicates stereo and multichannel clips.

Stereo and multichannel clips are displayed in the Clip List by default in collapsed view. The individual clips can be displayed by clicking the arrow to the left of the clip to expand the name.



Stereo clips, expanded (top) and collapsed (bottom)

To expand or collapse all stereo and multichannel clips:

- Press Option (Mac) or Alt (Windows) while clicking the expand/collapse triangle.

Individual items of an expanded-view stereo or multichannel clip can be selected independently of the other associated clips in the Clip List.

Rules for Stereo and Multichannel Clips

For stereo and multichannel audio clips to be shown as collective clips, the component clips must be the same length. If an existing stereo or multichannel clip has been dragged onto multiple mono tracks and edited such a way that one or more components are no longer the same length, the stereo display is removed and the clips are displayed as individual clips in the Clip List.

Naming and Displaying Clips in the Clip List

A typical session can become cluttered with dozens of tracks and hundreds of clips. There are a number of things you can do to keep track of and manage a session's clips, including:

- Renaming existing clips
- Specifying how auto-created clips are named
- Hiding auto-created clips
- Removing unused clips

Renaming Clips

In the course of a session you can rename clips to give them more descriptive names, or to shorten or simplify existing names. When renaming a clip that was auto-created during editing, the clip becomes a user-defined clip and is displayed in the Clip List even when auto-created clips are hidden.

If a clip resides in a track, you can easily rename it by double-clicking it with one of the Grabber tools. However, if the clip does not reside in a track, or if you want to rename several clips, use the Rename command in the Clip List.

You can also rename a clip in a track using the Rename command in the Clip List menu or the Right-click menu.

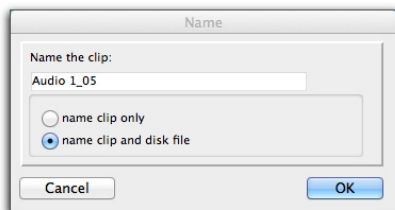
To rename one or more clips from the Clip List:

- 1 If you will be renaming an auto-created clip, select Show > Auto-Created from the Clip List menu.
- 2 Select one or more clips to be renamed in the Clip List.



If the Clip List Selection Follows Edit Selection option in the Editing Preferences page is enabled, you can highlight a clip in the Clip List by selecting it in a track.

- 3 Do one of the following:
 - From the Clip List menu, choose Rename.
 - Right-click on any selected clip and select Rename from the pop-up menu.
- 4 In the Name dialog, type a new name for the clip. If a whole-file audio clip was selected, specify whether to rename just the clip, or both the clip *and* the disk file.



Name dialog

- 5 Click OK to rename the clip. If renaming multiple clips, you are prompted, successively, to rename each clip.

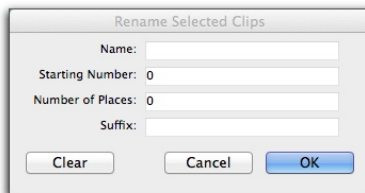
Auto-Naming Options

You can specify the auto-naming options for a clip when new clips are created from it in the course of editing.

Auto-naming of clips does not affect the names of parent audio files. Instead, it stores pointers to the clips within the parent source file.

To set auto-naming options for a clip:

- 1 Select a clip in the Clip List.
- 2 Choose Auto Rename from the Clip List menu.
- 3 In the Rename Selected Clips dialog, enter the text to be used when naming clips created from the selected clip.



Rename Selected Clips dialog

Name Determines the root name for the auto-created clips.

Starting Number Sets the start number for the sequentially numbered new clips.

Number of Places Determines the number of digits that occur before the auto numbers.

Suffix Specifies text to be appended to the end of the name, following the auto numbering.

- 4 Click OK.

Managing Clips in the Clip List

In the course of editing a session, the Clip List can quickly fill up with many clips—with ones you have created intentionally and also with those that are automatically created by cutting, pasting, and separating other clips, or importing Clip Group files (or REX files as clip groups). Pro Tools lets you hide or remove clips in your session so you do not have to scroll through a long Clip List.

Hiding Auto-Created Clips

You can hide clips that were automatically created during the course of editing.

To hide auto-created clips:

- From the Clip List menu, deselect **Show > Auto-Created**. With this option deselected, only user-defined clips appear in the Clip List.

User-defined clips include:


- Whole-file clips
- Clips created during recording
- Imported clips
- Renamed clips
- Clips created as a result of AudioSuite processing
- New clips created with the **Clip > Capture** command or the **Edit > Separate Clip** commands
- Clips created by trimming whole-file audio clips

When auto-created clips are hidden, Pro Tools warns you if the number of auto-created clips exceeds a certain threshold, and gives you the option of deleting them. If you choose to delete them, all auto-created clips are deleted at the same time.

To ensure that you keep any specific auto-created clips, rename them. When you name a clip, it is promoted from being an auto-created clip to a user-defined clip (see “Renaming Clips” on page 280).

Clearing Unwanted Clips

In the Clip List, you can select unwanted clips and then use the **Clear** command to remove them from the session. Whole-file clips can also be permanently removed from the hard drive on which they are stored.

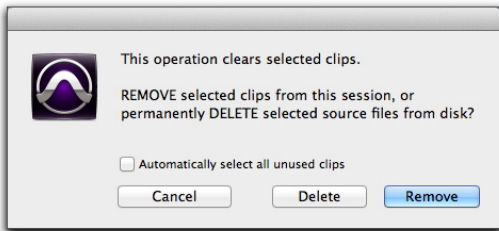
 *The Clear command cannot be undone.*

To find and remove unused clips in a session:

1 Do any of the following:

- For MIDI clips, from the Clip List menu, choose **Select > Unused**.
- For audio clips, from the Clip List menu, choose **Select**, then choose **Unused**, **Unused Except Whole Files**, or **Offline**.

- 2 After all unused clips are selected, choose Clear from the Clip List menu. The Clear Selected dialog opens.



Clear Selected dialog (audio clips)

- 3 In the Clear Selected dialog, select the Automatically select all unused clips option if you want to ensure that *all* unused clips, including whole file clips, are selected for deletion or removal. Any selections previously made in the Clips List are ignored.
- 4 Do one of the following:
 - Click Remove to remove the unused clips from the session.
 - If clearing a whole-file audio clip and you want to permanently remove the audio file from your hard drive, click Delete.

When deleting audio files for multiple clips, Pro Tools presents a warning dialog for each audio file.

To bypass repeated warning dialogs:

- Option-click (Mac) or Alt-click (Windows) the Delete button in the Clear dialog. This permanently deletes each successive audio file from your hard drive (for each of the unused clips) without any further warning.

 *Use this “power delete mode” with caution. Deletion of these files cannot be undone.*

Clip Name Right-Click Commands

When you Right-click a clip name in the Clip List, a pop-up menu provides access to the following commands:

Clear Removes selected clips from the session.

Rename Renames selected clips.

Time Stamp Redefines the time stamp of selected clips.

Replace Clip Replaces multiple instances of a clip with another clip.

Compact Compacts selected clips.

Export Clip Definitions Exports definitions for selected clips.

Export Clips as Files Exports selected clips as files.

Recalculate Waveform Overviews Redraws waveforms for selected clips.

Select Parent in Workspace Highlights the parent file of selected clip in the DigiBase Workspace Browser.

Reveal in Finder (Mac)/Reveal in Explorer (Windows) lets you reveal the parent file for any individual clip in the Finder (Mac) or Windows Explorer (Windows).

Object Select in Edit Window Selects clip as an object in the Edit window.


Chapter 16: DigiBase

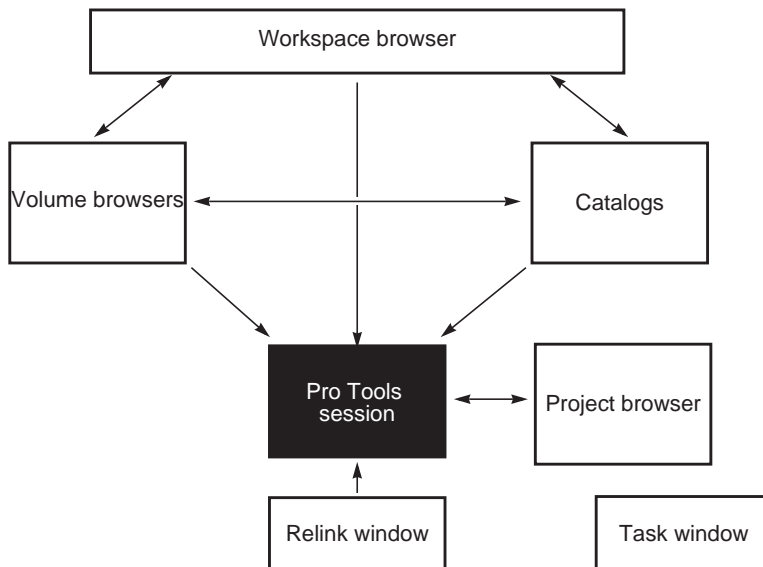
DigiBase combines an intuitive, browser-style interface with an integrated databasing engine, optimized for Pro Tools data and media management.

DigiBase browsers provide extensive databasing tools for searching, sorting, auditioning, and importing of audio, MIDI, video, plug-in settings (.txf), and session files. Multiple browsers can be displayed and arranged, with custom display settings provided to optimize your work environment.

DigiBase Data Flow

The following figure shows the data flow of a Pro Tools session and DigiBase browsers. Arrows show how files can be moved between the elements.

 For information on dragging and dropping files from DigiBase browsers to your Pro Tools session, see “Importing Files with Drag and Drop” on page 339.



Data flow between a Pro Tools session and DigiBase browsers

DigiBase Browsers

DigiBase databases are accessed through DigiBase *browsers*. DigiBase browsers provide an intuitive user interface to DigiBase databases with many convenient features for various file management tasks (such as search and sort functions).

DigiBase browsers in Pro Tools are analogous to windows in your computer's operating system, but are specifically designed for Pro Tools workflow. Multiple browsers can be displayed simultaneously, and arranged independently with custom display settings for each.

DigiBase browsers let you search and sort audio files, video files, and sessions. Audio, video, and session files displayed in DigiBase browsers can be dragged directly into the current Pro Tools session.

When offline items are needed, Pro Tools lets you find the correct matching files, then relink to on-line media.

The following types of DigiBase browsers are available with all supported systems:

- The Workspace browser
- Volume browsers
- The Project browser
- Catalogs

Workspace Browser

The Workspace browser provides access to all your mounted volumes, as well as the folders and files they contain.

Using the Workspace browser, you can:

- Access all mounted volumes.
- Access all Catalogs.
- Search across multiple volumes and Catalogs simultaneously.
- Designate volumes for Record and Playback, Playback Only, or Transfer.
- Unmount volumes.
- View, manage, audition, and import individual items in any catalog or mounted volume.
- Update databases for entire volumes.



For detailed information about the Workspace browser, see “Workspace Browser” on page 321.

Volume Browsers

Volume browsers provide file management for local and network *volumes*. Volumes are formatted partitions on a physical drive (hard drive). Open a Volume browser by double-clicking a volume in the Workspace browser. Any changes made in Volume browsers (such as copying, deleting, or moving files and folders) is mirrored on the volumes themselves. Volumes include mounted hard drives, network storage, and removable media (such as CD-ROMs).


Using Volume browsers you can:

- View, manage, audition, and import individual items on the volume.
- Update a database for contents of the volume.

Project Browser

The Project browser provides powerful search and management tools for the files referenced in your current session, regardless of where they are stored. Using the Project browser, you can:

- Show all the media files associated with the current session, including any missing files.
- View, manage, audition, and spot individual items.


 For detailed information about the Project browser, see “Project Browser” on page 324.

Catalogs

Catalogs provide the highest level of Pro Tools file management. Catalogs make it easy to organize files from multiple sources into libraries of favorite files. Catalogs can be sorted and searched, even when the files they reference are offline. Catalogs can also be shared.


Using Catalogs, you can:

- Collect and organize files from any combination of volumes.
- Create catalogs of complete volumes to view and search even if a volume is offline.
- View, manage, audition, and import individual items in the catalog.
- Update a database for contents of catalog.

 For detailed information about Catalogs, see “Catalogs” on page 326.


Task Window

The Task window is a utility for viewing and managing all of the background tasks that you initiate with Pro Tools. Use the Task window to monitor, pause, or cancel background tasks such as file copies, searches, and indexing.

 For detailed information about the Task window, see “Task Window” on page 330.

Relink Window

The Relink window provides tools and features for relinking sessions and catalogs to media files. Use Relink tools to search and reacquire missing files for use in the current session.


 For detailed information about the Relink window, see “Relink Window” on page 317.

Performance and Transfer Volumes

DigiBase lets you view, manage, and import sessions and media from both Performance and Transfer volumes.

Performance Volumes Are storage volumes (hard drives) that are suitable for playback and have been designated in the Workspace browser as Record and Playback (R) or Playback Only (P) of media files in a Pro Tools session.

Transfer Volumes Are volumes that are not supported for media playback in Pro Tools (such as shared network volumes or CD-ROMs), or storage volumes (hard drives) that have been designated in the Workspace browser as Transfer (T) volumes. Transfer volumes *cannot* be used to record or play back media in a Pro Tools session. Designated Transfer (T) volumes can be useful for transferring session and media files between different Pro Tools systems.

 For more information on volume designations, see “Audio and Video Volume Designators” on page 322.

Databases

The information displayed in DigiBase browsers is stored in individual databases. Pro Tools creates these databases automatically for all mounted volumes, including Transfer volumes, on your system drive.

Pro Tools databases use three file types:

volume.ddb Stores media and session file metadata for a particular volume.

catalog.ddb Stores media and session file metadata for a user defined Catalog. Cataloged media and session files are can reside on multiple volumes, including Transfer volumes.


Wavcache.wfm Stores waveform overviews for all audio files referenced by each session.

Volume Databases

For each volume (whether they be local hard drives, removable media, or shared network storage), a database file is created in a folder, on the system drive.

On Mac, Volume databases are stored in Library/Application Support/Avid/Pro Tools/Databases/Unicode/Volumes/.

On Windows, Volume databases are stored in Program Files\Avid\Pro Tools\Databases\Unicode\Volumes\.

 *If you delete the Database folder, all existing database information is lost. To recreate a deleted Database folder, re-index your storage volumes (see “Indexing DigiBase Databases” on page 292).*

Sharing Database Files

Database files can be shared among users. This is particularly useful for Transfer volumes, eliminating duplicate processing (indexing) time.

For example, shared volumes (such as network storage volumes) tend to be large, and indexing can be a time consuming task. To avoid duplicate effort, one user can manually index part or all of the shared volume just once, then email the database files to other users. Database files can be added by placing them within each user’s Volumes folder. Periodic manual indexing then keeps all databases current.

Sharing Catalogs

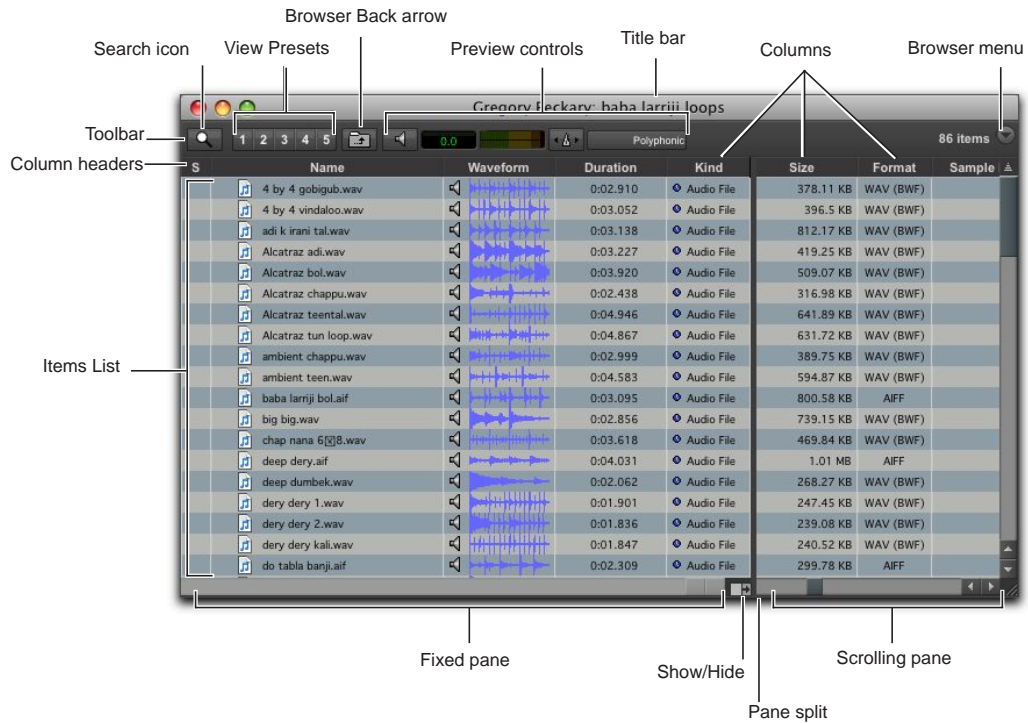
Catalogs can be created for a particular project and then shared among multiple systems to help facilitate more efficient workflow. Catalogs are stored as database files on your system drive.

On Mac, Catalog database files are stored in the Library/Application Support/Avid/Pro Tools/Databases/Unicode/Catalogs folder.

On Windows, Catalog database files are stored in the Program Files\Avid\Pro Tools\Databases\Unicode\Catalogs folder.

DigiBase Browser Windows and Tools

DigiBase browsers display all files in their database, including Pro Tools and non-Pro Tools files. Unknown file types can be shown, as well as aliases, and desktop folders.



Basic DigiBase browser tools, panes, and columns (Volume browser shown)

To maximize processing speed and protect vital components, DigiBase does not display all folders. For example, in Windows, DigiBase browsers do not display the Program Files, Windows, Pro Tools Databases, WU Temp, or System Volume Information folders; and on Mac, DigiBase browsers do not display the System, Applications, Library, or Pro Tools Databases folders. This excludes them from being indexed, searched, sorted, or affected in any way by DigiBase tasks. You should not store Pro Tools session or media files in any of these folders.

The main elements of a DigiBase browser include the following.

Title Bar Shows the browser type (Work-space, Volume, Project or Catalog), and the name of its associated volume, session or catalog.

Toolbar Provides the Browser menu, Search icon, View Presets (numbered 1–5), DigiBase browser navigation tools, and preview tools.

Items List Displays the contents of a volume, folder, session, or Catalog database in rows.

Columns Identifies the type of metadata displayed in the items list (such as file name and format) for volumes, folders, and files in the Items List.

- Columns can be resized by dragging the column border, or rearranged by dragging the Column headers.
- Columns can be dragged to either of two available panes, the Fixed or Scrolling panes.

Each row of data in a DigiBase browser represents an Item (such as a file or folder). Data about each item is displayed in columns. Columns can be arranged and placed in either the Fixed pane or the Scrolling pane.

Opening DigiBase Browsers

There are several ways to open, close, and navigate within DigiBase browsers.

To open the Workspace browser:

- Choose Window > Workspace.

To open a Volume browser:

- 1 Open the Workspace browser (Window > Workspace).
- 2 Double-click a volume or folder in the Items List. A new Volume browser opens.

To open the Project browser:

- 1 Open a Pro Tools session.
- 2 Choose Window > Project.

To open a Catalog browser:

- 1 Open the Workspace browser (Window > Workspace).
- 2 Click the Expand/Collapse icon next to the Catalogs icon to show all Catalogs, if they are not already visible.
- 3 Double-click a Catalog.

To open another Volume or Catalog in a new DigiBase browser window and leave the current Volume or Catalog browser open:

- Command-double-click (Mac) or Control-double-click (Windows) the Volume or Catalog.

Viewing the Contents of a Volume, Folder, or Catalog

To expand or collapse the currently selected folder, do one of the following:

- Click the Expand/Collapse icon next to the folder.
- Select a volume, folder, or Catalog, and press the Right Arrow key to expand, or the left Arrow key to collapse.

To move up one level in a DigiBase browser:

- Click the Back arrow in the DigiBase Browser toolbar.



To move up one level in a DigiBase browser, press Command+Up Arrow key (Mac) or Control+Up Arrow key (Windows).

Moving DigiBase Browsers to the Foreground or Background

To bring all open DigiBase browsers to the foreground:

- Choose Window > Browsers > Bring to Front.



To bring all DigiBase browsers to the foreground, press Option+J (Mac) or Alt+J (Windows).

To send all DigiBase browsers to the background:

- Choose Window > Browsers > Send to Back.



To send all DigiBase browsers to the background, press Option+Shift+J (Mac) or Alt+Shift+J (Windows).

All open DigiBase browsers are moved to the background, bringing the other windows to the foreground. DigiBase browsers remain open and accessible.

To bring an open DigiBase browser to the foreground:

- Choose Window > Browsers, and select an open DigiBase browser from the submenu.

To cycle to the next or previous DigiBase browser:

- Press Control+Left/Right Arrow keys (Windows) or Command+Left/Right Arrow keys (Mac).

Closing DigiBase Browsers

To close all DigiBase browsers:

- Option-click (Mac) or Alt-click (Windows) the Close box of any DigiBase browser.



Because the Task window is a utility and not a browser, it remains open.

Working with Items in DigiBase Browsers

Opening Sessions

To open a Pro Tools session listed in a DigiBase browser:

- With no Pro Tools session currently open, double-click a Pro Tools session file in any DigiBase browser.

Opening AAF and OMF Sequences

AAF and OMF sequences can be opened from DigiBase browsers.

You can also drag and drop AAF and OMF sequences from DigiBase browsers into the current session.

To open an AAF or OMF sequence from a DigiBase browser:

- 1 Do one of the following:
 - With no Pro Tools session currently open, double-click the AAF or OMF sequence in a DigiBase browser.
 - Drag the AAF or OMF sequence from a DigiBase browser to the Timeline in an open session.
- 2 Configure the Import Session Data dialog.
- 3 Click OK.

Creating and Opening DigiBase Browser Folders

DigiBase browsers let you create and manipulate folders (file system sub-directories). All folders have Expand/Collapse icons to show their contents. Dragging items onto a folder icon is the same as dragging into an open DigiBase browser.


To create a new folder in a Volume browser or Catalog:

- 1 Choose New Folder from the Browser menu.
- 2 Type a name for the folder, and click OK. (Click Cancel to cancel the new folder.)

In Volume browsers, the folder is created on disk. In Catalogs, the folder is created in the Catalog only. The Items List updates as new items are added.


To open a folder in the current DigiBase browser:

- Double-click the folder, or click the Expand/Collapse icon for the item.

 *With a browser in the foreground and the folder selected, press Command+Down Arrow key (Mac) or Control+Down Arrow key (Windows) to open a folder in the current DigiBase browser.*

To create and open a folder in its own new DigiBase browser:

- Command-double-click (Mac) or Control-double-click (Windows) the folder. The previous (parent) DigiBase browsers window remains open.

 *With a browser in the foreground and the folder selected, press Control+Alt+Down Arrow key (Windows) or Command+Option+Down Arrow key (Mac) to open a folder in its own new browser.*

Scrolling and Moving Selections

To scroll the active pane up or down:

- Press the Page Up or Page Down key.

To scroll to the top or bottom of the active pane:

- Press Home (for the top) or End (for the bottom).

To move items up or down in the current DigiBase browser:

- 1 Select items in a DigiBase browser, and make sure that window is in the foreground.
- 2 Press the Up or Down Arrow key.

Text Entry in DigiBase Browsers


Many text fields can be edited to replace or update data for an item.

To enter an edit to a text field and exit, and return to the previous display state:

- Press Enter.

To revert to the previous text and cancel a text edit:

- Press Esc.

 *For details on column editing, see “Column Data” on page 298.*

Indexing DigiBase Databases

Indexing is the process of reading media files, extracting just the metadata for each file, then storing that data in an associated database so that it may be displayed in the columns of a DigiBase browser. Once a volume or folder has been fully indexed, it can be searched very quickly because all of the metadata has already been sorted and organized.

If a volume or folder has not been indexed, it is indexed automatically the first time it is opened in a DigiBase browser. Volumes or folders containing a lot of media files can take a long time to index. For this reason, you may want to manually index specific volumes or files prior to starting a project to help expedite workflow.

Indexing while Browsing

The first time you open a Volume browser for a volume or folder that has never been indexed, Pro Tools automatically begins to fill the database for that level of the volume. Files and folders appear in the browser Items List, along with metadata in the columns for each item. Indexing continues until you either close the browser, or until that folder is completely indexed.

The next time you open that browser, metadata for items that have already been indexed is visible immediately. If the browser or folder was closed before indexing was complete, or if the contents of the folder have changed since the last time it was browsed, Pro Tools automatically updates the database the next time it is opened. This way, the database is always up to date for the folder you are browsing. (View the Task Manager to see current activity.)

Indexing while Browsing saves time because it only fills the database for items on the level of the volume that you are currently browsing. For example, if you are browsing the root level of the volume, it indexes only the folders and files on the root level. If you open a folder, Pro Tools indexes just the items in that folder. As a result, a database is only indexed for the parts of the volume that you have browsed. However, searches are faster and more complete when a volume is already completely indexed.

Manual Indexing

Manual indexing fills in all missing data, and updates changed data for selected folders and all of their sub-folders.

To update the index for a folder and all sub-folders:

- 1 Select the item in a DigiBase browser Items List.
- 2 Choose Update Database for Selected from the Browser menu.

To update the index for an entire volume:


- 1 Select the volume to update in the Workspace browser.
- 2 Choose Update Database for Selected from the Browser menu.

Last Indexed Date Display

The Last Indexed column shows the date that the index for that folder and all of its sub-folders was updated. Keep in mind that individual sub-folders may have been updated more recently.

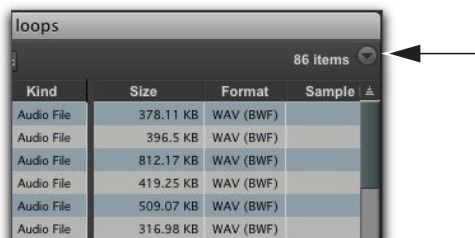
Automatic Updating for Pro Tools Actions

Whenever Pro Tools adds, deletes, or modifies a file on a volume or in a session, the appropriate database is immediately updated to reflect the change.

 *Changes that are made with Windows Explorer or the Mac Finder (such as copying or moving files) are not tracked by Pro Tools and are only indexed if the necessary folder is browsed or if a manual index is performed.*

DigiBase Browser Menu

All DigiBase browsers provide a Browser menu in the upper right corner of their toolbar. DigiBase Browser menus provides commands specific to each type of browser, as described below.



DigiBase Browser menu icon


Not all DigiBase browser commands are available in all browsers, as noted.

New Folder Creates a new folder on the current volume, or within the current Catalog. In Volume browsers, a new folder is created on disk. Available in Catalog and Volume browsers only. For more information, see “Creating and Opening DigiBase Browser Folders” on page 292.

New Catalog Creates a new, empty Catalog. Available in the Workspace browser only.

Create Catalog from Selection Creates a fully indexed catalog of the selected items.


Calculate Waveform Calculates the waveform displays for selected audio files, or all files contained in selected folders.

 For more information, see “Waveforms” on page 307.

Update Database for Selected Updates the database for the currently selected volumes or folders. Available in Workspace and Volume browsers only.

Calculate Elastic Analysis Calculates Elastic Audio analysis data for all selected audio files. Analyzed files are indicated by a check mark to the left of the file name. Analyzed files where a tempo has been detected are also updated as tick-based, display their duration in Bars|Beats, and display their native tempo in the Tempo column.

Clear Elastic Analysis Clears Elastic Audio analysis data for all selected audio files. Files cleared of Elastic Audio analysis data revert to sample time-base, display their duration in minutes and seconds, and do not report a tempo.

 For more information, see “Elastic Audio Analysis” on page 307.

Select Offline Files Selects all files that are currently offline.

Select Transfer Files Selects all files identified as Transfer files (files found on media that do not support playback).

Select Online Files Selects all files that are online.

Invert Selection Reverses (inverts) the current selection.

Reveal in Finder/Explorer Opens the corresponding parent window in the Finder (Mac) or Explorer (Windows) for the currently selected file.

Reveal in Browser Opens the parent browser for the selected item. The selected item is highlighted in its parent browser.

Relink Offline Opens the Relink window. Available in the Project browsers only.

Relink Selected Opens the Relink window, with all *selected* files from the current browser displayed and selected as Files to Match. Available in Catalogs and Project browsers only.

Copy and Relink Copies items currently selected in the Project browser to a chosen location, and re-links the session to the copies instead of the originals. Use this to easily move files from a Transfer to a Performance volume. This command is also available in Catalogs to copy items and relink the current Catalog to the copies.


Duplicate Selected Creates a duplicate of the selected items in the same location.

Lock Selected Locks all selected items. Any files already locked remain so. Locking a folder locks all files and sub-folders it contains.

Unlock Selected Unlocks the selected items.

Delete Selected Deletes any selected item. In the Workspace, Project, and Volume browsers, deleting an item deletes it from the disk. In Catalogs, you are asked whether you want to clear the items from the Catalog (leaving your disks unchanged) or delete the files referenced by the Catalog items.

Unmount Lets you unmount any online volume. Available in the Workspace browser only.

 *While Pro Tools is running, always use the Unmount command in the Workspace browser menu to unmount the volume, or quit Pro Tools and then unmount the volume.*

Auto-Preview Enables or disables automatic preview of files. When this option is enabled, selecting a file in the browser starts preview. The Preview button updates to show that Auto-Preview is enabled. Additionally, the Preview button updates to show an Auto-Preview icon.

Loop Preview Previews the selected file by looping playback of the file. If multiple files are selected, only the first selected file previews. When Loop Preview mode is enabled, the Preview button updates to show a Loop Preview Mode icon.

Spacebar Toggles File Preview Enables or disables the Spacebar for starting and stopping preview. When this option is disabled, use the Preview button to start and stop preview. In this mode, the spacebar starts and stops session playback. This lets you play back the session and, with the Audio Files Conform to Session Tempo option enabled, preview the selected audio file in time with the session.



When a browser is front-most, Control+P (Windows) or Command+P (Mac) starts and stops preview. Also, the Esc key stops preview.


Audio Files Conform to Session Tempo Conforms all tick-based audio files with Elastic Audio analysis, as well as REX and ACID files, to the session tempo. This option lets you play back the session and simultaneously preview the selected files in time with the session. This option is only available when a session is open. For more information, see “Conforming Preview to the Session Tempo” on page 312.

When the Audio Files Conform to Session Tempo option is enabled, Pro Tools analyzes un-analyzed files on preview or import. Audio files that have been analyzed as tick-based can then be previewed at the session tempo and conform to the session tempo on import.

When the Audio Files Conform to Session Tempo option is disabled, any tick-based audio files with Elastic Audio analysis, and REX and ACID files preview and import at their native tempo.

Additional DigiBase Commands in Catalogs

In Catalogs, the following additional commands are available to manage Comments in selected items.

 *For more information on Comments, see “Comments Fields” on page 301.*

Copy Database Comments to Clip Names Copies an item’s Database comments to its Clip Name.

Copy File Comments to Clip Names (Mac Only) Copies an item’s File Comments to its Clip Name.

DigiBase Browser Panes and Display

DigiBase browsers display an Items List consisting of various columns (such as file name, size, creation date, and sample rate). The Items List is split into two panes. Individual columns can be placed in either pane, and all columns can be shown or hidden, resized, reordered, and sorted.

Moving Columns Between Panes

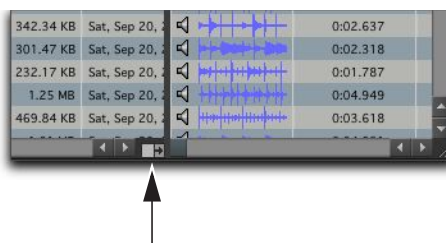
Columns in DigiBase browsers can be placed in either pane. Move columns you frequently need to see into the left-hand pane. Columns that you use less often can be moved to the right-hand pane.

To move columns between panes:

- Drag the column header to a different pane.

To show or hide the right-hand pane:

- Click the Show/Hide icon in the lower right corner of the left-hand pane.



Show/Hide Pane icon

Arranging and Resizing Columns

To rearrange columns in a pane:

- Drag the column header to a new position.

To resize a column:

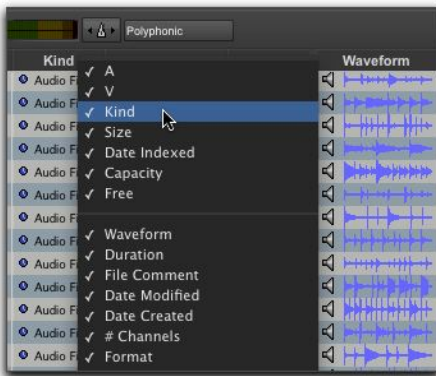
- Drag the column header boundary to a new width.

Showing and Hiding Columns

You can show or hide individual columns in DigiBase browsers to fit your workflow. The default column display includes the items you would use in most sessions.

To show or hide individual columns:

- Control-click (Mac), Start-click (Windows), or Right-click a column label and select or deselect the column name from the pop-up menu.



Showing and hiding columns

To show or hide all columns:

- Control-click (Mac), Start-click (Windows), or Right-click a column header and choose ALL or NONE from the pop-up menu. (Only the Name and Clip Name columns remain when you choose NONE.)

To show the default set of columns:

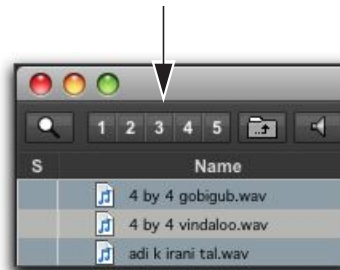
- Control-click (Mac), Start-click (Windows), or Right-click a column header and choose DEFAULT from the pop-up menu.

View Presets

Pro Tools lets you save up to five preset views for each type of DigiBase browser, and the Relink window. Presets can be recalled by clicking a View Preset button. View Presets are specific to each type of DigiBase browsers.

To store a View Preset:

- 1 Open a DigiBase browser, or the Relink window.
- 2 Arrange columns and views.
- 3 Command-click (Mac) or Control-click (Windows) one of the five View Preset buttons.



Browser View preset buttons

To recall a saved preset:

- Click the appropriate View Preset button.

About View Preset 1

Preset 1 becomes the default layout for other DigiBase browsers of its type when they are opened for the first time.

Sorting Columns

Columns can be sorted in ascending or descending order, and multiple sorts can be applied (up to four levels).

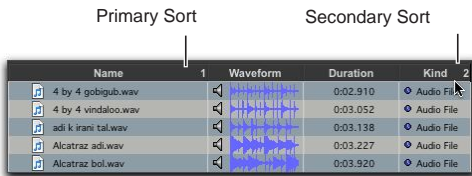
To sort by columns:

- Click the column title header.

It is often helpful to perform a secondary sort (for example, to sort by tape and timestamp).

To add a secondary sort:

- Option-click (Mac) or Alt-click (Windows) the column title for the secondary sort criteria.



Performing a secondary sort

To toggle the current sort order between ascending and descending:

- Click the Sort toggle arrow, at the top of the vertical scroll bars.

Column Data

In DigiBase browsers, each row of data represents an item in a database (such as a file, session, or volume). Each column displays specific data for an item, as follows.

Status The Status column is the first column on the left, and it displays the status of each item, as follows.

Status Icons and Display

Icon	Text	Status
none	Black	Online
none	Blue <i>italics</i>	Offline
T	Blue <i>italics</i>	Transfer
√	Blue	Elastic Audio Analysis Calculated

Name Displays the name of the file, folder, volume, catalog, or session. This text field is editable in all DigiBase browsers except Catalogs.

A Designates volumes for audio R (Record and Playback), P (Playback only), or T (Transfer). Available in the Workspace browser only.

V Designates volumes as video R (Record and Playback), P (Playback only), or T (Transfer). Available in the Workspace browser only.



For more information, see “Audio and Video Volume Designators” on page 322.

Kind Displays whether the volume, folder, catalog, or file. For files, this column displays what kind of file it is: session file, audio file, video file, or other. This field cannot be edited. For audio files, this column also indicates whether the file is sample-based to tick-based.

Size Displays the size of a file in kilobytes. For folders, the total size of all files in the folder is displayed. This field cannot be edited.

Date Indexed Displays the last indexed date for the item. This field cannot be edited.


Capacity Displays the total capacity of a volume. This field cannot be edited.

Free Displays the unused space on volumes. This field cannot be edited.

Waveform Displays a graphical overview of an audio file. See “Waveforms” on page 307 for more information.

Duration Displays the duration of a file in absolute time (minutes and seconds), regardless of the timecode format. For clip groups, MIDI, tick-based Elastic Audio files, REX, and ACID files, Duration displays Bars and Beats. This field cannot be edited.

File Comment Displays any embedded comments associated with the file. File comments are supported with BWF and SD II files, but are not supported with AIFF files. File Comments always remain with the file when copied, converted, or transferred. See “Comments Fields” on page 301 for more information.

 *When importing SD II files into Pro Tools 8.0.3 sessions or higher, they must be converted to a supported audio file format (.WAV or .AIF).*

Database Comment Displays user comments stored with the database, with support for Finder comments. Available in the Project browser and Catalogs only. See “Comments Fields” on page 301 for more information.

Date Modified Displays the last modified date for the item. This field cannot be edited.

Date Created Displays the creation date of an item. This field cannot be edited.

Number of Channels Displays the number of channels in an audio file: mono, stereo, or 3–8 as appropriate for supported multichannel files. This field cannot be edited.

Format Displays the audio file format: WAV, WAV (ACID) for ACID files, WAV (BWF), AIFF, MP3, or ReCycle for REX files. This field cannot be edited.

Sample Rate Displays an audio file’s sample rate. This field can be edited in DigiBase browsers for WAV and SDII files only. This can be useful when dealing with audio that has been pulled up or down, or to force a sample rate conversion to occur if that is necessary before importing a file that otherwise would not require conversion.

Bit Depth Displays an audio file’s bit depth. This field cannot be edited.

Tempo Displays the tempo associated with clip group, MIDI, tick-based Elastic Audio files, REX, and ACID files, and session files. This field cannot be edited.

Video Compression Displays the compression ratio of video files where applicable.

Frame Rate Displays the frame rate of video files where applicable.


Original Time Stamp Displays the original time stamp (timecode location) of audio or video files.

User Time Stamp Displays the user time stamp, if any, of audio files only.

Path Displays the directory path to the item.

Unique ID Displays the unique ID for a Pro Tools file.

Tape This column displays the original Avid tape name if the item is an OMF file (audio or video). If an audio file was originally recorded in Pro Tools, this field displays the name of the original session.

 *Video files originally recorded in Pro Tools with AVOption/XL do not display a tape name.*

TC Rate This column displays the frame rate of the item if the item is an AAF sequence or an OMF sequence or file: 24, 25, 29.97, 30, drop or non-drop. For sequences, the frame rate at the start of the sequence is displayed.

Channel Names Displays the channel name and number data embedded in multichannel audio files. You can edit the Channel name for mono BWF files only. When editing the channel name, anything entered in parentheses is discarded. However, the channel number will always be preserved.

Scene Displays scene number data embedded in audio files.

Take Displays take number data embedded in audio files.

Shoot Date Displays origination date and time information embedded in audio files. However, many field recorders do not populate the Shoot Date field, relying instead on the file's Creation Date to indicate date of production. When Pro Tools imports a field recorder file, it checks to see if the Shoot Date field is populated. If it is empty, Pro Tools copies the Creation Date of the original source file to the Shoot Date field of the new imported files. This field cannot be edited.

Sound Roll Displays sound roll number data (This data is usually named "Tape" in BWF files, but is distinct from the date displayed in the DigiBase Tape column). This field cannot be edited.

Sound Roll TC Displays the starting timecode of audio files. This field cannot be edited.

Sound Roll TC Rate Displays the frame rate information embedded in audio files: 24, 25, 29.97, 30, drop or non-drop. This field cannot be edited.

User Bits Displays text information embedded in audio files. This field can be used for user comments, or auto-generated info with certain field recorders.

Tape ID Displays tape ID information embedded in audio files. This field cannot be edited.

Project Displays the project name data embedded in audio files.

Circled Indicates if the status of a take is set to "circled" (*No* or *Yes*) in audio files. This is usually for indicating which take should be used.

Plug-In Name Displays the name of the plug-in for Plug-In Settings files (.txf).

Plug-In Manufacturer Name Displays the plug-in manufacturer's name for Plug-In Settings files (.txf).

Link Path Displays the path to the file used for relinking. Available in the Relink window only.

Clip Name Displays the name of the file, or the Avid clip name when the item is an AAF or OMF file. The Clip Name is what appears in the Timeline and Clip List when a file is imported into a session. This field can be edited in Catalogs only, and can be generated using either of the Copy Comments to Clip Name commands in the Browser menu (see "Additional DigiBase Commands in Catalogs" on page 296).

Comments Fields

Comments about individual files can be stored in the database, and embedded with the file's metadata wrapper. There are two types of comments fields: File Comments and Database Comments.

File Comments

File Comments are stored with the metadata of the file itself. Not all file types support File Comments. Indexing stores File Comments in the database, allowing them to be searched and viewed even if the file is offline. File Comments can be edited in DigiBase browsers, as long as the files or their parent media are not defined as read-only.

You can also add and edit File Comments to Pro Tools Session files from the Project browser. File Comments cannot be edited in Catalogs.

Database Comments (Catalogs and Project Browsers Only)

Database Comments in a Catalog are stored in the Catalog database. Database comments in the Project browser are stored in the Session. Database Comments, which can be up to 256 characters in length, are searchable, cross-platform, and editable. For more information, see "Comments and Catalogs" on page 327.

Adding and Editing Comments

To add, view, or edit a Comment:

- 1 Click the Comments field. The field expands to display the entire contents of the field if necessary.
- 2 Enter or edit a comment.
- 3 Press Enter, or click outside the text box to close it.

Selecting Items

To select a single item in a DigiBase browser:

- Click the icon for an item. When selected, the item Name is highlighted.



You can also type the first letter, or the first few letters, of the item you want to select in a DigiBase browser. For example, if you have a folder full of drum loops, and the one you are looking for is named "Ska Loop," just type the letters S and K on your computer keyboard and the first item that starts with "sk" will be highlighted in the list.

To select multiple items:

- Marquee-select a group of items, or Shift-click additional items. Command-click (Mac) or Control-click (Windows) to select multiple non-continuous items.

To select all items listed:

- Press Command-A (Mac) or Control-A (Windows).

To select all Transfer files in the current window:

- Choose Select Transfer Files from the Browser menu.

To select all offline files:

- Choose Select Offline Files from the Browser menu.

To select all online files:

- Choose Select Online Files from the Browser menu.

To reverse the current selection:

- Choose Invert Selected from the Browser menu.

Moving, Copying, Duplicating, and Deleting Items

Moving, copying, duplicating, and deleting items in DigiBase browsers follow the same rules and behavior as in the operating system. For example, moving a file to another volume copies the file, and Pro Tools warns you if an item is about to be overwritten or replaced. Dragging an item from a Catalog to a Volume browser always makes a new copy of the item.

Moving Items

To move items:

- Select one or more items and drag them to a new location. Moving to a new location on the same volume moves the item, while moving to a different volume copies the item.



You can drag items directly into the Timeline or Clip List of the current session. See “Importing Files with Drag and Drop” on page 339.

Copying Items

To copy and move items:

- Select one or more items and Option-drag them to a new location.

Duplicating Items

To duplicate one or more items:

- 1 Select one or more items.
- 2 Choose Duplicate Selected from the Browser menu.



To Duplicate selected items in DigiBase browser, press Command-D (Mac) or Control-D (Windows).

Deleting Items and Folders

You can select and delete files and folders in all browsers. If a selected item resides on a read-only volume, it cannot be deleted.

For Catalogs, see “Deleting Catalog Items” on page 303 for additional information.

To delete one or more items:

- 1 Select one or more items.
- 2 Do one of the following:
 - Press Delete.
 - Choose Delete Selected from the Browser menu.
- 3 Pro Tools asks you to verify that you want to permanently delete selected files from disk. Click Delete to proceed, or click Cancel to leave your files and disks unchanged.



To skip the warning dialog, hold the Option key while pressing Delete (or while choosing Delete Selected).

To delete locked files:

- 1 Select one or more items.
- 2 Press Command+Delete (Mac) or Control+Delete (Windows).

Deleting Catalog Items

When you delete a folder or item from a Catalog, Pro Tools lets you choose whether to delete only the alias from the Catalog, or also delete the original files from the disk.

To delete an item from a Catalog.

- 1 Open a Catalog and select one or more items.
- 2 Do one of the following:
 - Press Delete.
 - Choose Delete Selected from the Browser menu.
- 3 When prompted, do one of the following:
 - To remove the aliases for the selected items from the Catalog, click Aliases.
 - To delete the selected items from disk (and remove their aliases from the Catalog), click Files.

Deleting Folders in Catalogs

Deleting a folder from a Catalog does not delete the folder on disk (even if you choose to delete all files from disk). Because Catalogs are “snapshots” of items, their aliases only include files that resided in the corresponding folder at the time the Catalog was created. To avoid potential data loss, folders are never deleted from disk, even though you might choose to delete Files instead of Aliases.

Searching Items

DigiBase provides powerful search capabilities so you can quickly search and find files.

The Workspace browser lets you search across multiple volumes and catalogs (if available). All other DigiBase browsers let you search the currently displayed contents of that individual browser.

Performing a search filters the Items List or Search Results pane to display only found items that match the search criteria.

The Relink window provides specialized search capabilities for finding and relinking missing files. For more information, see “Linking and Relinking Files” on page 313.

Search Features for All Systems

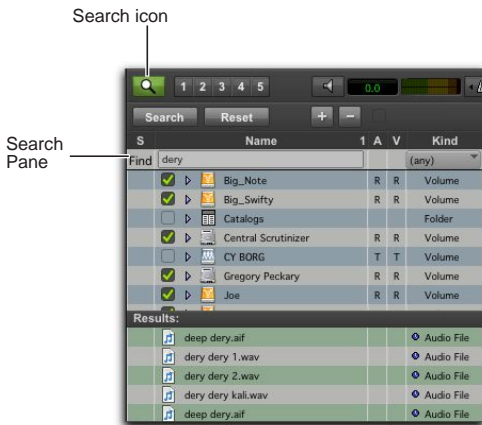
All systems provide the following search capability:

- Search by item Name, Kind, and Date Modified.
- Results of a search are displayed in the Items List, where they can immediately be selected for auditioning, copying, and other operations. In the Workspace browser, a separate “Search Results” pane displays found items.
- Utilize search syntax modifiers, such as OR, wildcard characters, and greater than/less than. See “Search Modifiers” on page 305.
- Search in Quick or Advanced Search mode. Quick mode assumes (fills in) wildcard characters for faster data entry while searching. Advanced Search mode lets you specify wildcard characters for more precise searching. See “Search Modes” on page 306 for more information.
- Search by any data column, such as Comments fields, sample rate, format, and tempo.
- Save the results of a search as a new Catalog.

Starting a Search

To search the current DigiBase browser:

- 1 Click the Search icon to display the Search pane.



Search icon and Search pane



You can also start a search by pressing **Command+F** (Mac) or **Control+F** (Windows).

- 2 Do one of the following:
 - Type text into the File Name field to search by name, or type a date, or select a kind from the Kind pop-up menu. See “Entering Data for Searches” on page 304 for more information.
 - Choose additional search criteria as needed. Press Tab to move to the next available search field, or Shift+Tab to move to the previous.
- 3 Click the Search button, or press Return (Mac) or Enter (Windows).

Searching begins, indicated by the spinning arrows in the toolbar, and by the Search button changing to Stop. The Results List (at the bottom of the DigiBase browser) fills with items that match the search criteria. Items can be selected and auditioned as they are found.

To stop a search:

- During a search, click the Stop button.

This stops the search routine, and the Stop button changes back to Search. Whatever results have already been found continue to be displayed, and all entries in search fields are retained.

To reset your search settings:

- Click Reset to clear all criteria in search fields, and return to the main Browser view (all items). The Search pane remains open.

To close the search pane and return to the complete Browser view:

- Click the browser Search icon to toggle the Search pane closed or open.

The search is stopped, the Search (and Search Results pane) close, and the window returns to show the main Browser view.

Entering Data for Searches

Field Formats and Searching

The following describe the types of data formats available (not all search fields are available on all systems).

Text Fields Allow direct entry of text. By default, the field is empty.

Pop-Up Menus Provide options for certain fields.

Date and Time Accepts date and time entries in a variety of formats.

Timecode Uses standard Pro Tools timecode entry shortcuts in hh:min:sec:frames.

Search Modifiers

Certain fields have small pop-up menus containing *modifiers*, which limit the search criteria entered in the field.

Modifiers include:

- Equal to (=)
- Not Equal to (!=)
- Less Than (<)
- Greater Than (>)
- Less Than or Equal to (<=)
- Greater Than or Equal To (>=)
- Range (<...>)

About Range-Limited When enabled, a second search field is added so that a range of two values can be entered (such as two dates). Pro Tools finds all items that fall between or are equal to those two values.

Wildcard Characters (* and ?)

An asterisk (*) can be entered at the beginning or end of a text entry when you want to perform wildcard searches. For example, if you want to find all files with a name that ends with *scratch*, you could enter **scratch* in the Search field. This finds files with names such as *vocal.scratch*, and *dialog2.scratch*.

A question mark (?) can be used for single-character wildcards. For example, a search on *f?ee* finds *free*, and *flee*. A similar search on *f*ee* finds *frendlee*, *flippee*, *flee*, *free*, and so on.

OR Searches

The Plus (+) and Minus (–) buttons add and delete OR rows to find results that match the criteria either in the top row or the additional rows.

To add and use OR rows in a search:

- 1 Click the (+) button to add an OR row identical to the upper row, but with no entries in the search fields.
- 2 To add an additional OR row, click the Plus (+) button again. (An empty OR row has no effect on the search.)
- 3 Enter search criteria.

For example, to find all files named either *Dog* or *Bark*:

- Type *Dog* in the first File Name field.
 - Add an OR row.
 - Type *Bark* in the second File Name field.
- 4 Click Search.

To remove OR rows:

- Click the Minus (–) button to delete the bottom OR row.

AND Searches

If you enter two or more words in a text field, Pro Tools finds files that contain all of those words. For example, if you type *Dog Bark*, only files that contain both the words *Dog* and *Bark* are found.

Quotations Marks for Text Strings

Text enclosed in quotation marks is searched as one text string. For example, if you type “*Dog Bark*” (with quotes), only items with *Dog Bark* anywhere in the File Name are considered a match.

Search Modes

DigiBase provides two different text searching environments:

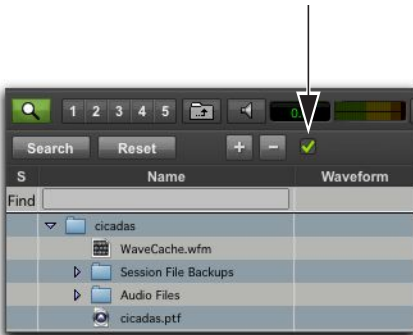
Quick Search Mode Applies wildcards before and after each text string. For example, a Quick search for *Dog* finds *Dogs*, *dog_bark*, and *howling_dogs*.

Advanced Search Mode Does not automatically apply any wildcards. Therefore, an Advanced search on *Dog* finds *Big Dog*, but not *Dogs* (unless you manually add a wildcard, as described in “Wildcard Characters (* and ?)” on page 305).

In addition, Advanced Search recognizes *word breaks* such as underscores and capitalization. For example, an Advanced search on *Dog* also finds *Big_Dog* (Big-underscore-Dog) and *BigDog*, though it would not find *BigDogs*.

To enable Advanced Search mode:

- Click to enable the Advanced Search mode option.



Advanced Search mode option, in Search pane

To return to Quick Search mode:

- Click to deselect the Advanced Search mode.

💡 *Toggling search mode affects all DigiBase browsers.*

About the Search Process

Searches are conducted in two passes, each indicated by Search Status displayed in the Search pane (and the Task window).

Searching Databases The existing databases are searched first. While this is the fastest search pass, this search pass can only be as accurate as the database (in other words, if the database is not completely up to date you might not find the files you want).

File System Search Pass This is the second pass of a search. This search is not as fast as the Database pass, but it is more thorough because it is not relying on the database, which may or may not be current.

💡 *Each pass is completed before the next pass begins.*

Saving Search Results as a Catalog

To save the results of your search as a Catalog:

- 1 Choose Edit > Select All, or press Command+A (Mac) or Control+A (Windows), to select all items in the Items List.
- 2 From the Browser menu, choose Create Catalog.

📖 *For more information, see “Catalogs” on page 326.*

Waveforms

The Waveform column displays waveforms for audio files. Waveform display depends on the following:

- Waveforms are displayed if they have already been calculated and stored, either with the file metadata or in the global Waveform cache.
- When a file is imported into a session, a waveform is automatically calculated for it.



Waveform displays in a DigiBase browser

- Waveforms are gray if they have not been stored with the file metadata or in the global Waveform cache.

The waveform overview is stored in the file, or in the Pro Tools Databases folder on your system drive. For more information, see “WaveCache” on page 307.

Summed Waveforms for Multichannel Files

Waveform displays for stereo and multichannel files are summed.

Calculating Waveforms for Display

If an audio file item does not have a waveform, the waveform must be calculated to be visible in a DigiBase browser Waveform display.

To calculate waveforms in a DigiBase browser:

- 1 Select online audio files, or folders containing audio files, in a DigiBase browser.
- 2 Choose Calculate Waveform from the Browser menu.

WaveCache

A global WaveCache file stores waveforms that cannot be written back to the sound file, such as read-only files, files on network and other read-only volumes, and interleaved files. WaveCache files are stored in the Pro Tools Databases folder on your system drive.

Elastic Audio Analysis

You can both calculate and clear Elastic Audio analysis for selected audio files in DigiBase browsers. Only AIFF and WAV files are supported for Elastic Audio analysis and processing. Any other file format (such as MP3) must be converted to AIFF or WAV for Elastic Audio analysis and processing.



Even though the MP3 file formats are not directly supported by Elastic Audio, you can import them into a WAV- or AIFF-based session and then use the converted files on Elastic Audio-enabled tracks. File formats that do not match the session are converted automatically on import.



For more information on Elastic Audio, see Chapter 40, “Elastic Audio.”

To calculate Elastic Audio analysis:

- 1 In a DigiBase browser, select the files you want to analyze.
- 2 Do one of the following:
 - From the Browser menu, choose Calculate Elastic Analysis.
 - Right-click one of the selected files and choose Calculate Elastic Analysis from the pop-up menu.
- Preview the file with the Audio Files Conform to Session Tempo option enabled.

Analyzed files are indicated by a check mark to the left of the file name.

Analyzed files in which a regular tempo was detected are updated as tick-based, display their duration in Bars|Beats, and display their native tempo in the Tempo column.

Analyzed files in which no tempo was detected remain sample-based. These files typically contain only a single transient (such as a snare hit) or they are longer files without a readily identifiable regular tempo (such as entire songs).

⚠ *On Mac, if you do not see the Elastic Audio Analysis icon or the duration does not change to tick-based during the preview process, check the permissions for the folder in the Mac Finder. You must have write access of the directory for this feature to work.*

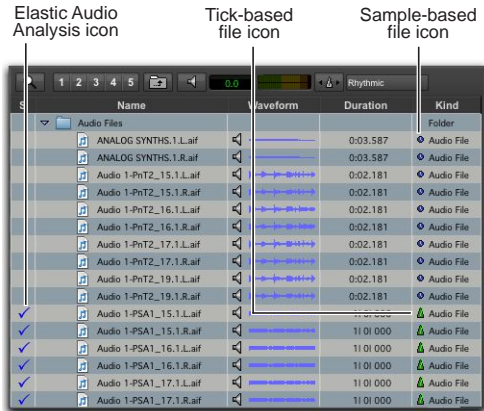
To clear Elastic Audio analysis:

- 1 In a DigiBase browser, select the files with Elastic Audio analysis that you want to clear.
- 2 Do one of the following:
 - From the Browser menu, choose Clear Elastic Analysis.
 - Right-click one of the selected files and choose Clear Elastic Analysis from the pop-up menu.

Files cleared of Elastic Audio analysis data revert to sample timebase, display their duration in minutes and seconds, and do not report a tempo.

File Timebase and Elastic Audio Analysis Icons

DigiBase browsers provide three icons to indicate whether a file has Elastic Audio analysis and the file's timebase.



Elastic Audio and Timebase icons in DigiBase browsers

Elastic Audio Analysis Icon Indicates that the file has Elastic Audio analysis data.

Sample-Based File Icon Indicates that the file is sample-based. The file's duration is displayed in minutes and seconds.

Tick-Based File Icon Indicates that the file is tick-based. The file's duration is displayed in Bars|Beats and the file's native tempo is displayed in the tempo column.

Previewing Audio in DigiBase

Audio files can be previewed in DigiBase browsers. Previewing follows the master Audition path as selected in the Output pane of the I/O Setup (see “Audition Paths” on page 97). The base level for previewing is determined by the Master Fader (or Auxiliary Input) level assigned to the Audition path. You can also adjust the Preview Volume in the DigiBase browser.

To preview an audio file in a DigiBase browser:

- 1 Select an audio file in a browser Items List. Make sure the DigiBase browser is the foreground (active) window.
- 2 Do one of the following:
 - Click the Waveform Preview button (the speaker icon to the left of the waveform display). Click again to stop auditioning.
 - If Spacebar Toggles File Preview is selected in the Browser menu, press the Spacebar. Press the Spacebar again to stop auditioning.
 - Press Control+P (Windows) or Command+P (Mac) to start and stop previewing.
 - Press the Esc key to stop previewing.

💡 *If the Auto-Preview option is enabled, previewing starts as soon as the file is selected in a DigiBase browser.*

To audition from a specific location within the file:

- Click in the waveform display at the location.



Auditioning an audio file

Interleaved Files

When previewed in DigiBase, interleaved audio files with more than two channels are summed to mono for auditioning.

Multi-Mono Files

Multi-mono files must be previewed one file at a time.

Split Stereo Files Preview Together

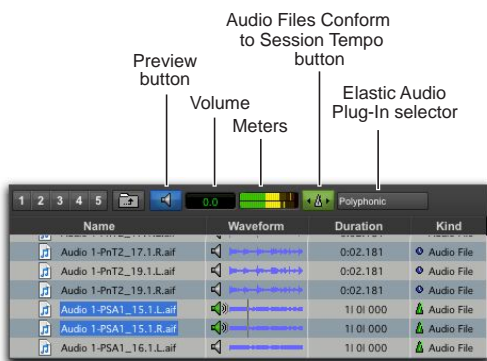
When selecting one of a pair of Split Stereo files, such as “Drums.L” and “Drums.R,” both files preview together. To preview only the selected channel of a split stereo pair, press the Shift key and start preview.

⚠ *Some Pro Tools operations can cause temporary interruptions in DigiBase auditioning.*

💡 *MIDI files can be previewed from the session Clip List, but not from DigiBase browsers. See “Previewing Clips in the Clip List” on page 279.*

Preview Controls and Indicators

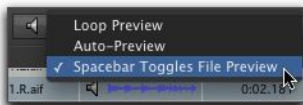
Every DigiBase browser provides the following preview controls in the Toolbar: Preview, Volume, Meters, Audio Files Conform to Session Tempo, and Elastic Audio Plug-In.



Preview controls in DigiBase browsers

Preview Button

The Preview button starts and stops preview of audio files selected in DigiBase browsers. You can also Right-click the Preview button to change the Preview mode and set whether or not the spacebar toggles file preview.



DigiBase Browser, Preview button Right-click menu

Volume

The Volume control in DigiBase browsers lets you boost or attenuate the gain for previewing selected files.

To change the volume for previewing in DigiBase browsers:

- 1 Click the Volume field to display the Volume fader.
- 2 Adjust the Volume fader (from $-\infty$ to +12 dB).



DigiBase Browser, Preview Volume fader

Meters

The meters display the level of the audio and also provide clip indicators. For mono files, the mono signal is shown in both meters. For stereo files, the top and bottom meters show the left and right channels respectively. Greater than stereo multi-channel files are displayed as summed mono in both meters.


The Clip LED lights when clipping occurs and clears automatically after 3 seconds.

Audio Files Conform to Session Tempo Button

The Audio Files Conform to Session Tempo button mirrors the corresponding Browser menu command. When enabled, all tick-based audio files with Elastic Audio analysis, as well as REX and ACID files, conform to the session tempo. This lets you play back the session, and then simultaneously preview the selected files in time with the session. The Audio Files Conform to Session Tempo button is only available when a session is open, otherwise it is disabled and grayed out.


When the Audio Files Conform to Session Tempo button is enabled, Pro Tools analyzes any un-analyzed files on preview or import. Tick-based audio files conform to the session tempo during preview and on import. Sample-based files, those where no tempo has been detected, always preview and import at their original speed and duration.

When the Audio Files Conform to Session Tempo button is disabled, any tick-based audio files with Elastic Audio analysis, and REX and ACID files preview at their native tempo.

 For more information, see “Conforming Preview to the Session Tempo” on page 312

Elastic Audio Plug-In Selector

The Elastic Audio Plug-In selector lets you select any Real-Time Elastic Audio plug-in as the default plug-in for previewing and importing Elastic Audio. Changing the plug-in in any DigiBase browser also affects the Elastic Audio Default Plug-In option in the Processing preferences.

 For information on Elastic Audio plug-ins, see “Elastic Audio Plug-Ins” on page 882.

Preview Modes


DigiBase browsers provide three Preview modes: Normal Preview, Loop Preview, and Auto-Preview.

Normal Preview

Normal Preview simply plays the selected audio file and stops at the end of the file. Deselect Loop Preview and Auto-Preview for Normal Preview mode.

Loop Preview

Loop Preview plays the selected file by looping playback of the file. If multiple files are selected, only the first selected file previews. When Loop Preview mode is enabled, the Preview button updates to show a Loop Preview Mode icon.

 Control-click (Mac) or Shift-click (Windows) the Preview button to toggle Loop Preview mode on and off.

To loop preview a file in a DigiBase browser:

- 1 Do one of the following:
 - In the Browser menu, select Loop Preview. The Browser Preview button updates to show the Loop Preview icon.
 - Right-click the Preview button and select Loop Preview.



DigiBase Preview button, Loop Preview mode

- 2 Select an audio file in a DigiBase browser's Items List. Make sure the DigiBase browser is the foreground (active) window.
- 3 Do one of the following:
 - Click the Browser Preview button.
 - Click the Waveform Preview button.
 - If Spacebar Toggles File Preview is selected in the Browser menu, press the Spacebar.

To stop loop audition:

- Do one of the following:
- Click the Browser Preview button again.
- If Spacebar Toggles File Preview is selected in the Browser menu, press the Spacebar again.
- Press Command+P (Mac) or Control+P (Windows).
- Press the Esc key.

Auto-Preview

Auto-Preview plays the audio file as soon as it is selected. Additionally, the Preview button updates to show an Auto-Preview icon.



Command-click (Mac) or Control-click (Windows) the Preview button to toggle Auto-Preview mode on and off.

To automatically preview files when selected:

- Do one of the following:
- From the Browser menu, select Auto-Preview. The Preview button updates to show that Auto-Preview is enabled.
- Right-click the Preview button and select Auto-Preview.



DigiBase Preview button, Auto-Preview enabled

Conforming Preview to the Session Tempo

Pro Tools lets you preview Elastic Audio analyzed files at the session tempo. The selected default Elastic Audio plug-in is used for previewing Elastic Audio analyzed audio files at the session tempo. Additionally, other tick-based files, such as REX and ACID files, can also be previewed at the session tempo and in time with playback.

To preview files at the session tempo:

- 1 In the session, place the insertion point at the location where you want to preview the file in DigiBase.
- 2 In a DigiBase browser, select the file you want to preview.
- 3 Do one of the following:
 - Click the Audio Files Conform to Session Tempo button. It highlights when enabled.
 - From the Browser menu, select Audio Files Conform to Session Tempo.
 - Right-click the file you want to preview and select Audio Files Conform to Session Tempo from the pop-up menu.
- 4 Click the Preview button in the DigiBase browser and the file plays at the session tempo.

Preview in Context

Pro Tools lets you preview audio files in DigiBase browsers while playing back a Pro Tools session. Tick-based audio files (those with tempo detected Elastic Audio analysis, as well as REX and ACID files) can play back in tempo, and at the corresponding bar and beat location, with session playback. Tick-based audio files audition at the session tempo when the Audio Files Conform to Session Tempo option is enabled.



Deselect the Spacebar Toggles File Preview option in the Browser menu to start and stop session playback with the Spacebar without previewing in the DigiBase browser. Use Command+P (Mac) or Control+P (Windows) to start and stop preview in the front-most DigiBase browser during session playback.

Reserve Voices for Preview in Context (Pro Tools HD Only)

Preview in context (previewing audio files in DigiBase during session playback) uses disk voices for playback. The number of voices required depends on the channel width of the selected Audition Paths on the Output page of the I/O Setup window. For example, if a stereo audition path selected in the I/O Setup requires 2 voices for preview in context, whereas a 5.1 audition path requires 6 voices. If one or more voices are not available for preview in context because they are in use by disk tracks (or routing for RTAS processing), the Preview button in DigiBase browsers will be unavailable during session playback.

Pro Tools provides an option to reserve voices for preview in context. The number of reserved voices is determined by the channel width of the selected Audition Paths in the I/O Setup. Voices reserved for preview in context are unavailable for disk tracks.

To reserve for voices for preview in context:

- 1 Choose Setup > Preferences.
- 2 Select the Operation tab.
- 3 Enable the Reserve Voices For Preview In Context option.
- 4 Click OK to close the Preferences dialog.

Linking and Relinking Files

A Pro Tools session is made up of references, or *links*, to audio files and other session media. Audio and video files must be stored on suitable Performance volumes and be properly linked in order to be playable in the session.

The following types of files are not playable:

Transfer Files Files that are stored on volumes not suitable for playback, such as network volumes or CD-ROMs.

Missing Files Files that cannot be found where the session expects them, either because they have been moved, or because they are stored on volumes that are not currently mounted (offline volumes).

The process of reacquiring missing files is referred to as *relinking*. Relinking can involve certain subtasks, depending on the situation.

- Transfer files must first be copied to a suitable Performance volume. The session is then relinked to the copies on the Performance volumes instead of the original Transfer files.
- Volumes may be searched for missing files and, when the files are found, Pro Tools relinks the session to the file's new location.
- Files that reside on offline volumes must first have their volumes mounted (brought online) before they can be relinked.



Catalogs have unique linking characteristics. See "Relinking and Aliases in Catalogs" on page 320.

Choosing When to Relink

Pro Tools lets you relink files while opening a session or after a session is already open, as follows:

- ◆ Relinking when opening a session ensures that the session opens with all media playable. Automatic and manual relinking can be performed. See “Opening a Session with Missing Files” on page 315.
- ◆ Relinking later (after a session is already open) is the fastest way to open the session, but all missing items remain offline and unplayable. When items are needed, go to the Project browser to relink offline items. See “Missing Files in an Open Session” on page 316.

Forcing a Relink

If you cannot relink to the original file, you can force a relink to another file. See “Force Relinking Files” on page 320.

Transfer Files

Unlike missing files, Transfer files are files that have been found but which reside on volumes unsuitable for playback, such as CD-ROMs or network drives. These volumes appear as Transfer volumes in the Workspace browser.

Opening a Session with Transfer Files

If a session finds files on a volume unsuitable for playback, a dialog appears prompting you to copy them to a suitable volume.

To copy Transfer files found when opening a session, do one of the following:

- Click Yes to open the Copy and Relink dialog.
- Click No to open the session with all Transfer files offline. When opened, the session’s Project browser indicates Transfer files with a “T” in their Status column.

Transfer Files in an Open Session

To make Transfer files playable in the current session:

- 1 Choose Window > Project.
- 2 Double click the Audio Files folder to display all of the audio files.
- 3 Choose Select Transfer Files from the Browser menu.
- 4 Choose Copy and Relink from the Browser menu.
- 5 Specify a location for the copied files on a valid Performance volume and click OK.
- 6 Repeat for video files, as necessary.

Copy and Relink

The Copy and Relink command is a file management option in the Project browser and in DigiBase Catalogs.

Copy and Relink provides a convenient way to copy files and relink the session or Catalog to the copies rather than to the originals.

To copy items to a new location and Relink to the copies:

- 1 Do one of the following:
 - Choose Window > Project.
 - Open the appropriate Catalog.
- 2 Select the items you want to copy and relink. You can select any media files (online, offline, and Transfer files).
- 3 Choose Copy and Relink Selected from the Browser menu.
- 4 If the default location for the copies (the session's Audio Files folder) is not appropriate, specify a different location and click Choose.
- 5 The files are copied to the chosen destination and the session or Catalog is relinked in the background.

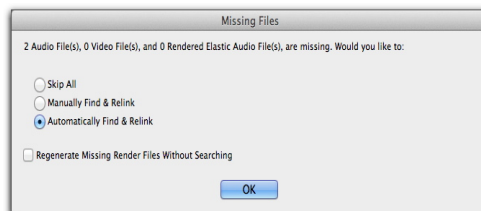
Missing Files

Files are missing if they are not found in the same location as when the session was last saved. This could be because you moved the files or the session folder, or because the files are on a volume that is not currently mounted.

Opening a Session with Missing Files

To open a session with missing files:

- 1 When you open a session, Pro Tools opens the session with all available media, then shows you how many files are missing (if any) and asks how you want to proceed. (If told that files are unsuitable for playback, see “Transfer Files” on page 314.)



Missing files warning when opening a session

- 2 Select one of the following:
 - Skip All—or press Command+S (Mac) or Control+S (Windows).
 - Manually Find Relink—or press Command+M (Mac) or Control+M (Windows).
 - Automatically Find Relink—or press Command+A (Mac) or Control+A (Windows).
- 3 Select Regenerate Missing Rendered Files Without Searching to exclude rendered Elastic Audio files from the relink process and regenerate them instead.
- 4 Click OK.

Skip All

Use the Skip All option to skip all missing files. This option is the fastest way to open the session utilizing all available media. Missing files are offline in the session, and shown in the Clip List and the Project browser with *italic* text.


Manually Find and Relink

This option opens the Relink window. Use the Relink window to search, compare, verify, and relink missing files. Files can be relinked one at a time or in batches. See “Relink Window” on page 317 for more information.


Automatically Find and Relink

Automatically Find and Relink is the simplest method to relink sessions to required media, but it provides no way to compare files or verify links. This option cannot be undone. The Automatically Find and Relink option does the following:

- Searches all Performance volumes for all missing items with matching Name, ID, Format, and Length.
- Links missing items to the first matches found.
- Commits links for all items possible, in the background.

 *Links, once committed, cannot be undone once the session is saved. The only way to revert to previous links is to close the session without saving changes.*

- If some files remain unlinked, the Task window opens and a failed task appears in the Paused Tasks pane. Double-click the Task icon to open the Relink window and manually find and relink files.

 *Even if all of the missing files are later found and relinked, the failed task remains in the Task Window. Like all failed tasks, it must be manually selected and deleted. See “About Failed Tasks” on page 332.*

Regenerate Missing Rendered Files Without Searching

Enable this option to exclude rendered Elastic Audio files from the relinking process (rendered files are recalculated instead). This option is available when Automatically Find and Relink or Manually Find and Relink is enabled.

Missing Files in an Open Session

You can open the Project browser to select and relink some or all missing files.

To relink missing (offline) files in an open session:

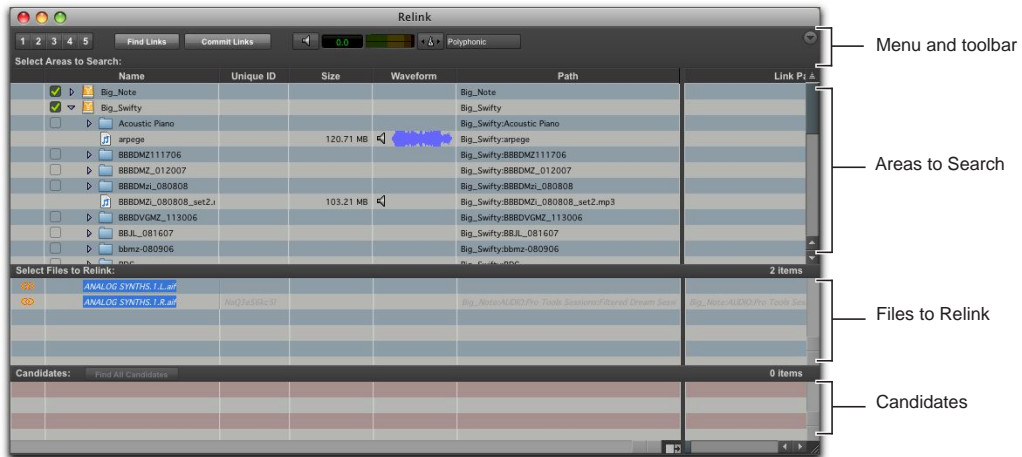
- 1 Choose Window > Project.
- 2 Choose Relink Offline from the Browser menu to open the Relink window.
- 3 Configure the Relink window as needed. See “Relink Window” on page 317 for more information.

To relink selected files in an open session:

- 1 Choose Window > Project.
- 2 Select the files to relink. Any file can be relinked, even if it is not an offline file.
- 3 Choose Relink Selected from the Browser menu.
- 4 Configure the Relink window as needed. See “Relink Window” on page 317 for more information.

Relink Window

The Relink window provides tools for all relinking tasks.



Main elements in the Relink window

Menu and Toolbar Includes the Relink menu, View Presets, and relinking buttons. Status is displayed at the far right.

Areas to Search Selects volumes on which to search for missing items.

Files to Relink Lists missing files.

Candidates Lists files that match the “relinking criteria” for a particular missing file. The Link icon next to the candidate can be toggled on or off to link (or unlink) the proposed candidate to the selected missing file.

The Relink window controls each phase of the relinking process.

The following topics explain how to:

- Open the Relink window (“Opening the Relink Window” on page 318).
- Select volumes and folders to search and not search (“Selecting Areas to Search” on page 318).
- Search, compare, and link individual files to one or more candidates (“Relinking Individual Missing Files” on page 318).
- Quickly match and link missing files in batches, with the ability to adjust the criteria by which files are matched (“Relinking Multiple Missing Files” on page 319).
- Toggle links on or off for any candidate (“Force Relinking Files” on page 320).
- Compare and review links before committing (“Committing Links” on page 320).

Opening the Relink Window

When opening a session with missing files, use the Manually Find and Relink option to open the Relink window.

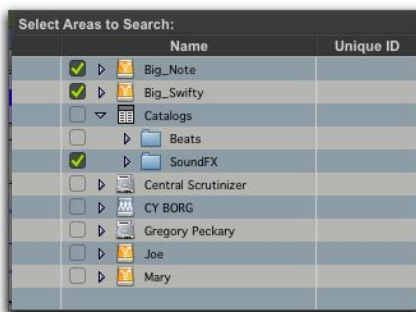
The Relink window can also be accessed after a session is open.

To access the Relink window from an open session:

- 1 Choose Window > Project.
- 2 Choose Relink Offline from the Browser menu.

Selecting Areas to Search

Selecting volumes and folders in the Areas to Search pane lets you focus the search for missing files. This can speed the relinking process by limiting the number of volumes or folders to search. In addition, excluding folders from a search for missing files also lets you redirect a session or Catalog to a more appropriate copy of an item.



Volumes selected to include in the search

To select volumes or folders to include or exclude in a search:

- 1 Configure the Areas to Search pane to display the appropriate volume, Catalog, or folder.

- 2 Click each item's Search column to toggle it to be included or excluded in the search. A check next to an item indicates it will be included in the search. All folders within items are also checked.

Single and Multi-File Relinking

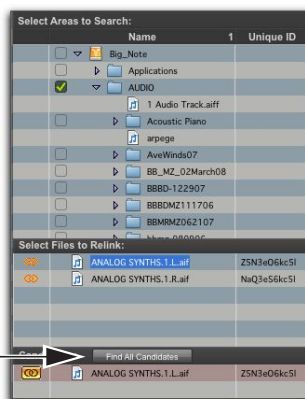
The Relink window can be used to relink one missing file at a time, or to relink missing files in batches.

Relinking Individual Missing Files

In some situations, individual files must be re-linked one at a time in order to relink the session to the correct file. This is necessary if multiple copies of a media file are online, or whenever you want the most control and flexibility over the relinking process.

To relink a missing file:

- 1 Configure the Areas to Search pane.
- 2 Select one item in the Files to Relink list.
- 3 Click Find All Candidates.



Find All Candidates, for relinking a selected missing file

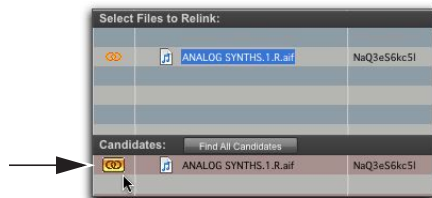
Pro Tools searches the selected volumes and displays all files that match File Name or Unique ID in the Candidates list. Link icons indicate if a Candidate is already linked.

⚠ *OMF video clips can only be relinked to a session if they have matching Unique IDs.*

⚠ *QuickTime video clips can only be relinked to a session by file name and file format (QuickTime).*

💡 *To control matching and linking criteria when relinking an individual missing file, use the Find Links button. Find Links is explained in “Relinking Multiple Missing Files” on page 319.*

- 4 Click the Link icon next to the appropriate Candidate to which you want to relink. A Link icon next to an item indicates it will be relinked to the item currently selected in the Files to Relink list.



Link icon, indicating Linked status

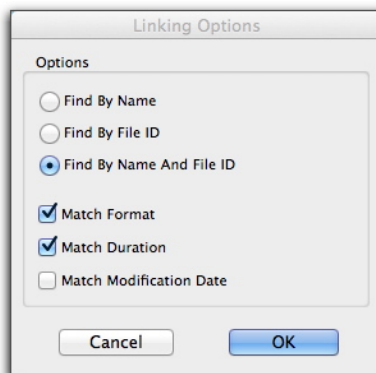
- 5 Click the Link icon next to other Candidates, if you want to relink to additional missing files.
- 6 Click the Commit Links button.

Relinking Multiple Missing Files

Using the Find Links button, multiple files can be matched and linked in one procedure.

To relink multiple missing files:

- 1 Configure Areas to Search. (See “Selecting Areas to Search” on page 318.)
- 2 Select one or more items in the Files to Relink list. The Find Links button becomes available.
- 3 Click Find Links.
- 4 Configure criteria for relinking, if necessary, in the Linking Options dialog:
 - By default, Find by Name and ID is enabled.
 - To add additional matching criteria, select an option from the Linking Options dialog. (Modification Date is only applicable to Catalogs.)
 - If Match Duration is enabled, Pro Tools only selects files of the same length or *greater*.



Linking options

- 5 Click OK to continue (or click Cancel to return to the Relink window).

Pro Tools searches for an acceptable candidate for the first missing file (the first item selected in the Files to Relink list). A link icon appears next to each file as Pro Tools finds and links the first acceptable candidate to the missing file. The Link Path column shows the location of the selected candidate. Pro Tools continues searching, matching, and linking for each missing file in the Files to Relink list.

- 6 To view a candidate for a missing file, select to highlight the missing file. That file's candidate appears in the Candidates pane, where you can view its information and waveform.
- 7 If you are not satisfied with the candidate for a particular missing file, you can click Find All Candidates for the selected file (see "Relinking Individual Missing Files" on page 318).

Force Relinking Files

If you want to link to a substitute file (for example, if you know a file has the same audio or video but does not have a matching File Name or Unique ID), you can force a relink.


- ◆ To force relink an audio file, its file format (WAV, AIFF, or MXF), sample rate and bit depth must match those of the original file.
- ◆ To force relink a video file, its format (QuickTime, Avid, MXF, or OMF) and frame rate must match those of the original file.

To force a relink:

- 1 Choose Window > Project.
- 2 Choose Relink Offline from the Browser menu.
- 3 In the Relink window, select one item in the Files to Relink list.
- 4 Navigate in the Areas to Search pane to locate the file you want to relink.
- 5 Drag the file to the Candidates pane in the Relink window.
- 6 Click the Link icon next to the file you dragged to the Candidates pane.
- 7 Click the Commit Links button.

Committing Links

There is no Undo for relinking. Once a file has been relinked and the session saved, the session always remembers the new link (the original link is forgotten). For this reason, no files are actually relinked until you click Commit Links.

 *The Automatically Find and Relink option is the only relinking process that does not ask you to verify links before they are committed. If you use this option and are unsatisfied with the results, close the session without saving to prevent the new links from being committed.*

To commit links:

- 1 Use the Relink window to link files as explained in "Single and Multi-File Relinking" on page 318.
- 2 Click Commit. You are asked to verify committing links.
- 3 Do one of the following:
 - Click Yes to commit links.
 - Click No to stop without affecting files.

Relinking and Aliases in Catalogs

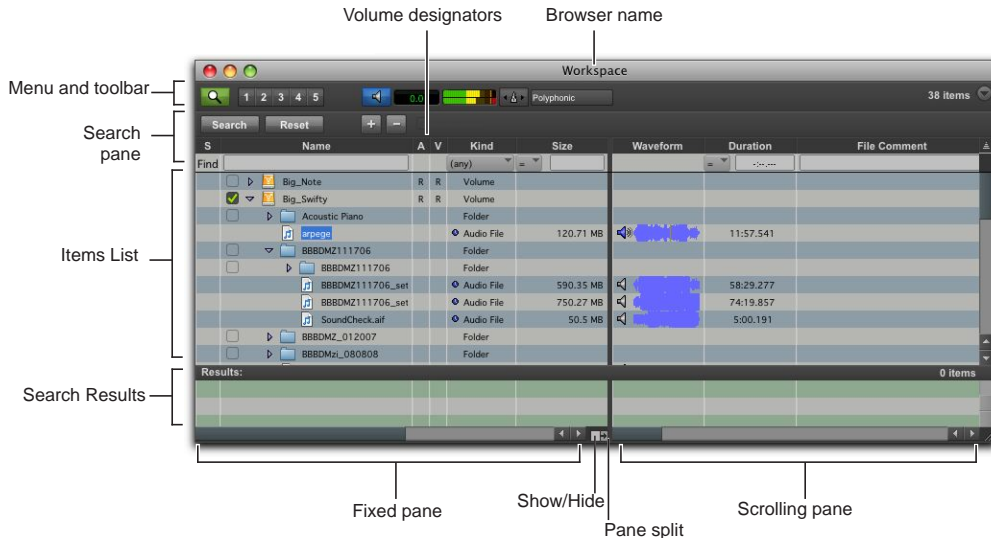
Catalogs are collections of "aliases" or "shortcuts" to actual files. If the files are moved, an item in a Catalog can become unlinked from the file it references.

To relink a Catalog:

- 1 Open the Catalog.
- 2 Select items to relink.
- 3 Choose Relink Selected from the Browser menu in that Catalog window.

Workspace Browser

The Workspace browser is your starting point for managing media. The Workspace browser is always available while Pro Tools is running, even if no session is open.



Workspace browser, with the Search pane displayed

Only the Workspace browser lets you do the following:

- Designate volumes as Performance volumes (Playback or Record volumes) or as Transfer volumes.
- View and access all available volumes
- Unmount volumes
- Create, view, and access Catalogs.
- Search multiple volumes and Catalogs simultaneously.

The Workspace browser is similar to your computer's desktop, in that it shows all of the mounted local and network volumes. The Workspace browser has all the common DigiBase browser elements, including an Items list, View presets, and access to all files. In addition, the Workspace browser provides drive allocation settings, access to catalogs, and the ability to search multiple volumes and catalogs simultaneously.

Opening the Workspace Browser

To open the Workspace browser:

- 1 Launch Pro Tools.
- 2 Choose Window > Workspace.



Press Option+; (Mac) or Alt+; (Windows) to open the Workspace browser.

Audio and Video Volume Designators

The Workspace includes columns for Audio and Video Volume designators. These two columns display, and let you designate, whether a volume is a Record, Playback, or Transfer volume.

R (Record and Playback) Able to play audio and video files already on the volume, and record new files.

P (Playback Only) Can play audio and video files already on the volume, but cannot have new files recorded to it.

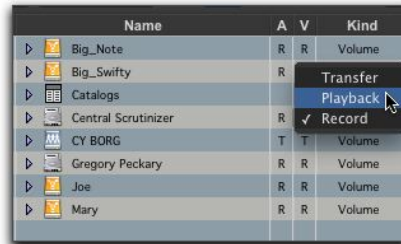
T (Transfer) Can only be used for storing, transferring, or auditioning files, and cannot be used for recording or playback.



If you have a Pro Tools system with multiple drives, and you intend to record multiple tracks simultaneously, you may want to designate the System drive as a Playback only or Transfer only drive for optimal performance.

To change a volume designator:

- 1 Open the Workspace browser.
- 2 Click and select the appropriate Audio or Video designator for the volume.



Designating a volume in the Workspace

Mounting and Unmounting Volumes

The Workspace browser lets you unmount volumes while Pro Tools is running, and shows newly mounted volumes as they come online.

To unmount a volume from within the Workspace browser:

- 1 Select a volume in the Workspace browser.
- 2 Choose Unmount Volumes from the Browser menu.

The Workspace browser closes the database file for the selected online volume and removes it from the Workspace browser, and unmounts the disk from the computer.

Pro Tools alerts you if the volume being unmounted has files referenced in the Timeline.



Always use the Unmount command in the Workspace browser menu to unmount volumes, or quit Pro Tools and then unmount the volume. Do not use any other method to unmount a volume while Pro Tools is running.

Catalogs in the Workspace Browser

The Workspace browser provides special tools for creating and accessing Catalogs. Once Catalogs have been created, they appear in the Workspace browser in the Catalogs folder.

To show all Catalogs:


- 1 Open the Workspace browser.
- 2 Click the Expand/Collapse icon next to the Catalogs folder.



Viewing Catalogs in the Workspace.

To open an individual Catalog:

- Double-clicking a catalog opens a DigiBase browser window for that catalog.

 For complete instructions on creating and working with Catalogs, see “Catalogs” on page 326.

Searching in the Workspace Browser

The Workspace browser provides the most comprehensive DigiBase search capabilities. The Workspace browser lets you perform searches across a single volumes, multiple volumes, or across any combination of volumes, folders, and Catalogs. You select which volumes to include in the search, and which to exclude. The Workspace also provides a separate Search Results pane to view, select and manage the results of searches.




Search and Search Results panes in the Workspace

The Search Results pane lets you maintain the results of searches, while still viewing and configuring options for additional searches.

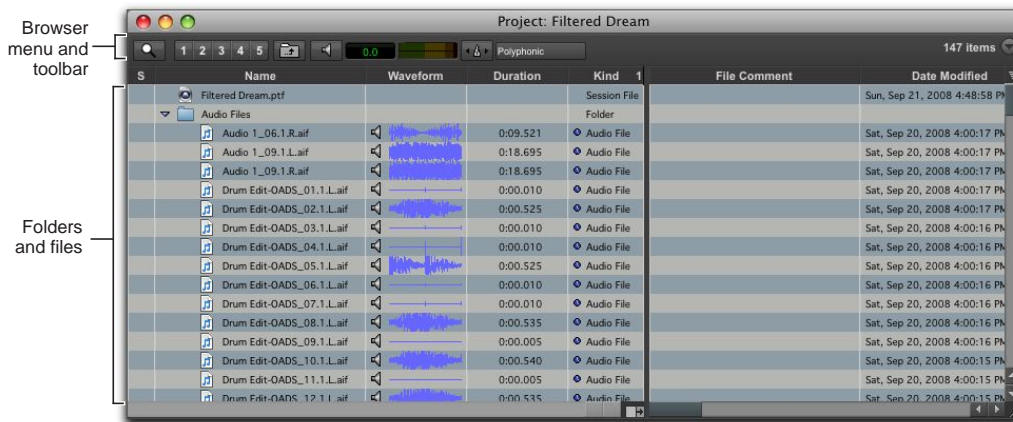
To search from the Workspace:

- 1 Choose Window > Workspace to open the Workspace browser.
- 2 Click the Search icon to display the Workspace Search pane.
- 3 Configure search criteria.
- 4 Click next to each item in the Areas to Search list to include or exclude volumes to be searched. Checked items and their sub-folders are included in the search. (The next time you open a Search pane in the Workspace, these settings remain in effect.)
- 5 Click Search.
- 6 The results of the search are shown in the Search Results pane.

 For more information on searching, see “Searching Items” on page 303.

Project Browser

The Project browser displays and manages all the files related to the current session, regardless of what volume they reside on.



Project browser

The Project browser is similar to the Clip List in that it contains all files associated with a session, with the added data, searching, and sorting capabilities of DigiBase browsers.

Unlike the Clip List, however, individual clips are not displayed in the Project browser (in which only complete files are listed).

Use the Project browser and its Browser menu commands to:

- View all media files associated with a session
- Identify, select, and relink offline files
- Identify, select, copy, and relink Transfer files

Opening the Project Browser

To open the Project browser:

- 1 Launch Pro Tools and open a session.
- 2 Choose Window > Project.



Press **Alt+O** (Windows) or **Option+O** (Mac) to open the Workspace browser.

The Project browser displays the following:

Audio Files Folder Contains all of the audio files currently referenced by the session, regardless of where they are located.

Render Sources Folder Contains all files that have been imported into the session, but are still being converted, copied, or processed.

Video Files Folder Contains any video files referenced by the session.

Each of the folder types in the Project browser has an Expand/Collapse icon. Clicking the icon shows or hides all of the files in the sub-group. The folders displayed in the Project browser are session-specific groupings of files, not physical folders on disk.

Locating Parent Files of Clips

The Project browser can be set to automatically highlight the parent file of any clip selected in the Pro Tools Clip List.

To highlight the parent file of a selected clip:

- 1 Select a clip in the Clip List. If the Clip List Selection Follows Track Selection preference is enabled, you can select a clip on a track.
- 2 From the Clip List menu, select **Select Parent in Project Browser**.



*When the **Select Parent in Project Browser** option is enabled, the Project browser automatically highlights the parent file of any file or clip selected in the Clip List.*

About the Project Browser

No Drag and Drop to the Project Browser

To import a file from another DigiBase browser into the current session, you must drag files to the Timeline or Clip List. You cannot import a file into a session by dragging it to the Project browser. (You can, however, spot files from the Project browser into the current session using drag/drop.)

Deleting Items in the Project Browser

Deleting items in the Workspace browser or in Volume browsers deletes the files from disk. Video and session files cannot be deleted in the Project browser.

Deleting an item from the Project browser lets you remove items from the current session, or delete them from disk (using the Pro Tools Clear Clips dialog).

Copy and Relink Restrictions

In the Project browser, the Copy and Relink command (in the Browser menu) cannot be used on session files, or on offline audio files. Use the Relink window to first bring items online. In addition, the Relink Selected command cannot be used on session files.

Updating the Project Browser

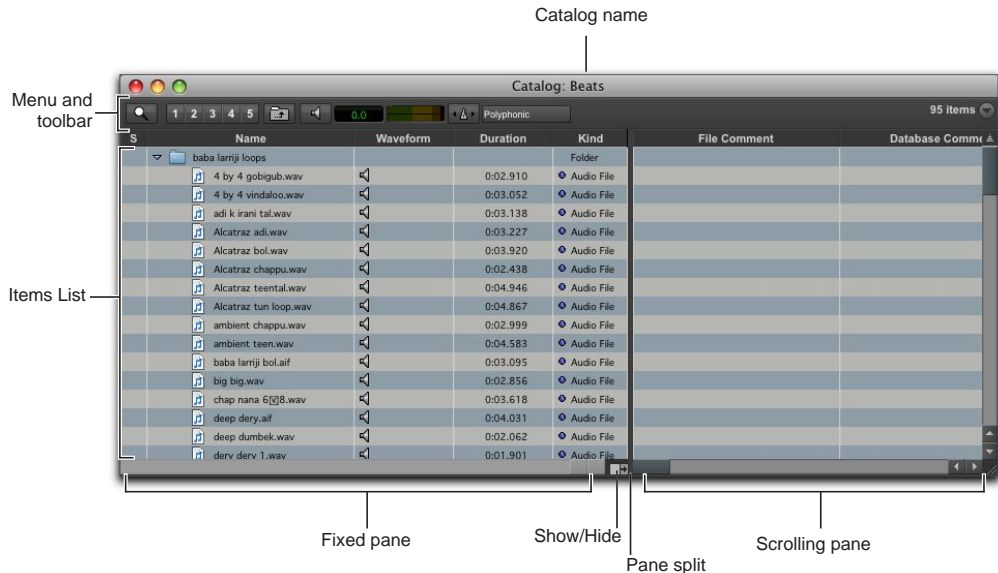
The Project browser is automatically updated whenever a file is added to or deleted from the session, so it is always fully indexed and up to date.



For instructions on searching, sorting, and working with the Project Browser, see “Project Browser” on page 324.

Catalogs

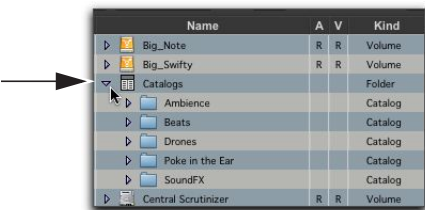
While Volume browsers are designed to be an accurate representation of the file structure on a given volume, Catalogs are similar to having a Favorites folder, and serve as a way to collect and organize frequently used items regardless of where they are stored. A Catalog is analogous to a folder full of aliases or shortcuts. Placing a file in a Catalog does not create a copy of the file, and does not change where the file is stored. Rather, it stores a reference (or alias) to the file so that it can be found and manipulated without having to search for its physical location.



Catalog browser

Opening a Catalog Browser

Catalogs are displayed in the Workspace browser.



Catalogs item in the Workspace

To open a Catalog browser:

- 1 Open the Workspace browser.
- 2 Click the Catalogs Expand/Collapse icon.
- 3 Do one of the following:
 - Click the Expand/Collapse icon for the Catalog to view its contents in the Workspace.
 - Double-click the Catalog name to open it in its own browser window.

Clip Names in Catalogs

Clip names are the names that appear in the Timeline and Clip List when a file is imported into a session.

For most files, the clip name is the same as the file name. For OMF Files, the clip name is the name that appears in the Avid bin.

Clip names can only be edited in a Catalog. Editing the clip name does not affect the actual file; however, if you add the same file to a new Catalog, it retains its original clip name. When you drag a file from a Catalog into a session, the edited clip name is what appears in the Timeline and Clip List.

If the Clip Name is longer than 32 characters, Pro Tools truncates the name automatically when imported into the session.

Comments and Catalogs

Catalogs provide commands for managing OS 9 Finder comments, Database comments, and Clip Names.

Database Comments in a Catalog are stored in the Catalog database. Database Comments, which can be up to 256 characters in length, are searchable, cross-platform, and editable.

Copy OS 9 Finder Comment to Database Comments (Mac Only) Copies an item's OS 9 Finder comments to its Database comments.



OS 9 Finder comments (from the OS 9 Get Info window) are not supported in OS X Get Info windows. Use the Copy OS 9 Finder Comment to Database Comments command to utilize any OS 9 Finder comments stored with your media.

Copy OS X Finder Comment to Database Comments (Mac Only) Copies an item's OS X Finder comments to its Database comments.

Copy Database Comments to Clip Names Copies an item's Database comments to Clip Name.

Copy File Comments to Clip Names Copies an item's File Comments to Clip Name.

Creating Catalogs

Catalogs can be added to the Workspace as new, empty Catalogs, or you can select items first and then save a Catalog of all selected items.

To create a new, empty Catalog:

- 1 Open the Workspace browser.
- 2 Choose New Catalog from the Browser menu.
- 3 Type a unique name and click OK.

To catalog a selection of items:

- 1 Open any DigiBase browser (including an existing Catalog).
- 2 Select the items you want to include in the new Catalog.
- 3 Choose Create Catalog from Selection from the Browser menu.

A new, fully indexed Catalog database of the selected items is created.

Creating Catalogs of Folders

To create a Catalog of an entire folder and all its contents:

- 1 Open the Workspace browser, if not already open.
- 2 Drag and drop a single folder onto the Catalog icon in the Workspace browser.

Pro Tools first indexes the folder, then a fully indexed Catalog is created, with the same name as the dropped folder.

Renaming a Catalog

Catalogs can be renamed at any time.

To rename a Catalog:

- 1 Click the Catalog item in the Workspace browser until its name highlights.
- 2 Type a new name for the Catalog.

Modifying Catalogs

To add items to a Catalog, do one of the following:

- Open the Catalog and drop new items from another DigiBase browser.
- Click the main Catalogs icon in the Workspace, to expand your view of all existing Catalogs, then drop items onto any Catalog.

To add a folder to a Catalog:

- 1 Open the Catalog.
- 2 Choose Create Folder from the Browser menu.

To delete items from a Catalog:

- 1 Select the items.
- 2 Press the Delete key, or choose Delete Selected from the Browser menu. A warning dialog appears.
- 3 In the warning dialog, do one of the following:
 - Click Cancel to cancel the delete operation.
 - Click Delete Files to delete aliases and associated files from disk.
 - Click Delete Aliases to delete only the aliases and not the associated files.

This operation cannot be undone.

Consolidating Files with Catalogs

Catalogs are excellent tools for consolidating files from a variety of sources.

For example, create a Catalog named “Thumps” and fill it with sound effects from three different volumes. You can then drag the Catalog from the Workspace browser to another volume, and a folder named “Thumps” is created on that volume. All of the files referenced by the Catalog are automatically copied to the volume. Folders and subfolders, if any, and their contents are included in the copy.

Updating Catalogs

Since a Catalog database is not linked to any particular volume, there is a limit to the abilities of the Update Index command. When Update Database for Selected is selected from the Browser menu in a Catalog, Pro Tools searches for the items represented by the aliases in the Catalog and updates the following information:

Metadata Metadata for all files found online, including File comments, are updated.

Database Comments Database Comments are not updated, because they are unique to each Catalog and are not part of the file’s metadata.

Relinking Catalog Items

If files are ever missing from a Catalog, use the Relink window to locate, copy, and relink files. For more information, see “Linking and Relinking Files” on page 313.

Deleting Catalogs

To delete a Catalog:

- 1 Select one or more Catalogs in the Workspace browser.
- 2 Press the Delete key, or choose **Delete Selected** from the Browser menu. A warning dialog appears.
- 3 In the warning dialog, do one of the following:
 - Click **Cancel** to cancel the delete operation.
 - Click **Delete Files** to delete aliases and associated files from disk.
 - Click **Delete Aliases** to delete only the aliases and not the associated files.


This operation cannot be undone.

Importing Catalog Items

You can import online and offline items from Catalogs into the current session.

Importing Online Items from a Catalog

Dragging and dropping audio files to the Pro Tools Clip List and Timeline is identical to dragging and dropping from Volume browsers.

 *For more information, see “Importing Files with Drag and Drop” on page 339.*

Importing Offline Items from a Catalog

With Catalogs, it is possible to search and import files that are offline. For example, if you have a music cue that you know you want to use, but it resides on a CD-ROM or other unmounted volume, you can spot the file from a Catalog to the session Timeline, and it is automatically imported into the session when the volume is mounted.

The first step is to add files to a Catalog (files must be online to be added to a Catalog). Once added to a Catalog, if the items are taken offline they are listed in italicized text.


Offline files can be dropped from a Catalog to the Timeline just like online files. When you drop the files, a dialog appears asking if you want to relink the files or skip relinking. Click **Skip All** to load all the items as offline files (in the Timeline, their clips appear in light blue). In the Project browser, these items are listed in the **Render Sources** folder, to ensure that Pro Tools remembers that these items need to be relinked.

Whenever the volume containing the offline items is mounted, Pro Tools automatically starts to import the files, in the background. This is true even if you have saved the session, quit, and relaunched Pro Tools.

Once the items are completely imported, they appear as online items in the Timeline, Clip List, and in the Project browser.

If the offline items match the session sample rate, bit depth, and file format, no conversion is necessary. As long as the volume is playable, the items become playable in the session as soon as the volume is mounted.

If the volume is unsuitable for playback, you are informed that some items must be copied to suitable volumes first.

 *For more information on Transfer files, missing files, and relinking, see “Relink Window” on page 317.*

Task Window

For maximum performance and flexibility with file management tasks, Pro Tools provides the Task window. File management with Pro Tools involves nearly constant creating, copying, converting, processing, searching, and indexing files. These tasks occur in the background, letting you continue recording, editing, and mixing without delay.

The Task window lets you monitor, pause and cancel ongoing tasks including file copying, fade regeneration, and indexing.

⚠ *You cannot drag and drop items to or from the Task window.*

Opening the Task Window

To open the Task Window:

- In Pro Tools, choose Window > Task Manager.



Press Option+ (Mac) or Alt+ (Windows) to open the Workspace browser.

Task Window Messages

If any background task cannot be successfully completed, the Task window comes to the foreground to notify you. The incomplete task is shown in the Paused Tasks pane of the Task window.

Because the Task window is a floating window, it does not interrupt current work. This allows you to continue recording and editing, and postpone file management until a more convenient time.



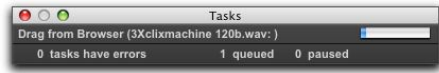
Task window, maximum view

Task Window Views

The Task window provides a maximized and minimized view.

To toggle between maximized and minimized views:

- Click the View Toggle icon in the top of the Task window.



Task window, minimum view

Task Window Tools, Columns, and Displays

The Task window menu provides commands for Task window operations.

The following data is always displayed in the Task window (both views):

Item Name Indicates affected item, whether a file, database, or other supported item.

Status Action being taken (for example, copying, processing, indexing and so on).

Progress Indicates the progress of the task or its sub-tasks, which include assessing the size of the items and the estimated amount of time necessary to complete the task.

Progress Indicator Indicates processing is ongoing.

Quantification Shows percentage of progress of the current task.

Active Tasks Pane

The upper Active Tasks pane shows the tasks that are in progress or waiting to start. The currently executing task is at the top. Tasks in this pane will be processed.

As tasks complete, they disappear from the queue.

Any task that fails to complete successfully is moved to the Paused Tasks pane (see below). The Status column displays a description of the failure.

Paused Tasks Pane

The Paused Tasks pane is displayed below the Active Tasks pane, and is separated by a moveable horizontal divider. Tasks listed in this pane will not be processed until they are moved back to the Active Tasks pane.

Pausing and Cancelling Tasks

The Task window lets you pause, resume, and cancel tasks.

To pause a task:

- Drag the appropriate task from the Active Tasks pane to the Paused Tasks pane.

The task moves to the top of the Paused Tasks pane.

To pause all tasks:

- Choose Pause All from the Task window menu.

To resume a task:

- Drag a task from the Paused Tasks pane to the Active Tasks pane. The task returns to its previous position in the queue.

To resume all paused tasks:

- Select Resume All from the Task window menu. All tasks in the Paused Tasks pane (except failed tasks) are moved to the Active Tasks pane.

To cancel a task:

- 1 Highlight any task in either pane of the Task window.
- 2 Press Delete to remove it from the Task window.

To cancel all tasks:

- 1 Select any single task in either pane.
- 2 Press Command+A (Mac) Control+A (Windows) to select all the tasks in that pane.
- 3 Press Delete.

This command cannot be undone.

About Cancelling Tasks

Some tasks involve one or more sub-tasks. Deleting a task cannot undo sub-tasks already completed. For example, if importing and converting multiple files appears as a single task, deleting that task before it is completed stops the import and conversion process, but files already converted and imported remain on disk. If you want to cancel a task involving multiple sub-tasks, you can instead let the process complete and then use Undo to completely undo all sub-tasks, as available.

Closing Sessions with Pending Tasks

If you close a session or quit Pro Tools while tasks are still pending (either in the Active or Paused Tasks panes of the Task window) Pro Tools asks if you want to cancel, or complete the pending tasks. You can choose to open the Task window and wait for pending tasks to complete, cancel the pending tasks, or quit. If you quit, some tasks are cancelled. Tasks that involve file copies are remembered and restarted when you relaunch Pro Tools.

About Failed Tasks

The Paused Tasks pane shows any tasks that could not be completed. The reason for the failure is shown in the Status column.

Failed Tasks cannot be resumed, and must be deleted manually from the Paused Tasks pane.

If Automatically Find and Relink was unable to find all files in a session, a failed task is placed in the Paused Tasks pane of the Task window. It remains there unless you manually remove it from the Task window (even if you have since found the files through a subsequent search and relink task).

Task Prioritization

A task that is in progress may be interrupted by a task of higher priority. When this happens, the partially completed task is halted and rescheduled later in the queue, and shown with a progress bar in the Active Tasks pane. When the higher priority task is finished the first incomplete task in the queue resumes.

Tips for Using the Task Window

Pause Tasks During Playback

A global preference **Pause During Playback** is provided in the Task window Browser menu. When enabled, Active Tasks are paused whenever Pro Tools is playing (or recording). This setting is especially useful when working on slower CPUs, or whenever you want to minimize system load for maximum playback and recording performance. This preference maintains its setting until the next time it is changed.

Stored Tasks

Any task that imports files into a session is stored with a session when it is closed, and resumes when the session is re-opened.

For example, if you Import Session Data with Copy From Source Media selected, then Save and Close the session before the copy completes, the copy tasks resume when the session is reopened.

Grouped Tasks

Some tasks consist of many smaller tasks. For instance, Copy and Relink may require hundreds of individual files to be copied. To help manage these tasks, they are grouped under the originating command. So in the example of a Copy and Relink command, one copy task would appear with an Expand/Collapse icon in the Task window. Clicking the icon shows each of the individual sub-tasks.

If there is more than one grouped task in the queue, all of the sub-tasks for the first group must be completed before the sub-tasks of the second group can be processed.

If the session is saved and closed while several of these group tasks are in the queue, and if those tasks are the type that can be interrupted and saved when closing the session, all of the tasks reappear as part of the same group when the session is re-opened.

Chapter 17: Importing and Exporting Session Data

Pro Tools lets you import and export a variety of data into and out of a session, including audio and MIDI files, clip groups, video files, track playlists, I/O configurations, and signal routing configurations.

You can import individual audio and MIDI files into a session, or import entire audio or MIDI tracks, along with all of their attributes, from another session. Additionally, with Pro Tools HD, you have the option of importing any combination of track attributes from another session, such as a track's audio or MIDI playlists, signal routing, plug-ins, or automation (see “Importing Session Data” on page 356).

When you are working with video, you can import and export video files from a session (see Chapter 51, “Working with Video in Pro Tools”).

Importing and Exporting Data to and from a Session

Importing

Pro Tools lets you import audio, video, MIDI, clip groups, or session files into the current Pro Tools session by:

- Dragging and dropping from:
 - A DigiBase browser
 - Mac Finder or Windows Explorer
- Using the File menu Import commands:
 - Session Data
 - Audio
 - MIDI
 - Video
 - Clip Groups
 - VENUE Channel Names as Track Names

Session data, audio files and clips can be imported to existing tracks, new tracks, the Track List, or the Clip List in a Pro Tools session.

Exporting

Pro Tools lets you export audio, video, MIDI, clip groups, and session data by:

- Using the Send Via DigiDelivery command
- Using the Export to Sibelius or Send to Sibelius command (MIDI only)
- Using the File menu Export commands:
 - Selected Tracks as New AAF/OMF
 - Selected Tracks as New Session
 - MIDI
 - Sibelius
 - Session Info As Text
- Using the Tracks Right-click menu:
 - Send To Sibelius command (Score Editor only)
 - Export MIDI command
- Using the Clip List menu:
 - Export Clip Definitions command
 - Export Clips as Files command
 - Export Clip Groups command

Audio Conversion on Import

Depending on the properties of the audio files you are importing, you can add, copy, or convert the files:

- ◆ When files are *added* to a Pro Tools session, they remain at their current hard drive location and are not moved or copied. The session references the original files wherever they are on your system. Additionally, the files referenced by the session retain their original file format, sample rate, and bit depth.
- ◆ When files are *copied* into the session, the original files remain wherever they are on your system and are copied to the session's Audio Files folder and are then added to the session. The session references the copied files, not the original files. Additionally, the copied files referenced by the session retain their original file format, sample rate, and bit depth.
- ◆ When files are *converted* into the session, the original files remain wherever they are on your system, converted to the session file format, sample rate, and bit depth, and are written to the session's Audio Files folder. The session references the converted files, not the original files.

Files That Can Be Added to a Session Without Conversion

Any audio file of a supported file format (WAV and AIFF) and bit depth (16, 24, and 32-bit float) can be added to sessions without conversion. Audio files with sample rates that do *not* match the session sample rate can be added to the session without conversion, but will playback at a different pitch and speed from files that match the session sample rate.



You can enable the Automatically Copy Files on Import option in the Processing Preferences page to be sure to always copy files to the session's Audio Files folder when importing audio by drag and drop.

Files That Must Be Converted on Import

Audio files formats other than WAV and AIFF must be converted on import. Pro Tools automatically converts these files to the current session file format on import. Also, if the session is not enabled for Interleaved files, Pro Tools splits interleaved audio files into multiple mono files on import.

If clip definitions are present in an audio file, you can convert and import the audio for a clip without importing the entire parent audio file using the Import Audio command.



Pro Tools 7.x and higher does not support audio file names that contain certain ASCII characters (see “Opening a Session that Contains Audio File Names with Illegal Characters” on page 397).

Supported Audio File Formats

Audio files of the following types can be imported into Pro Tools sessions without conversion:

- AIFF
- WAV or BWF (.WAV) (including support for WAV Extensible and RF64)

Audio files of the following types can be imported into Pro Tools sessions, but will be converted to the current session file format on import:

- AAC audio (including audio with AAC, Mp4, and M4a file extensions)
- ACID files
- MP3
- MXF audio
- QuickTime (Mac only)
- ReCycle (REX 1 and 2) files
- SD II
- SD I
- Sound Resource (AIFL—Mac only)
- WMA (Windows Media—Windows only)



Pro Tools cannot import protected AAC or MP4 files with the .M4p file extension. These files are protected under the rules of digital rights management.

Sample Rate Conversion Quality

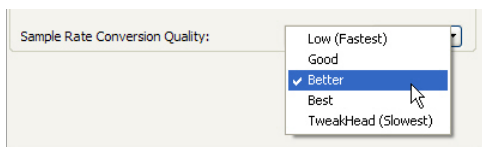
The Sample Rate Conversion Quality setting determines the quality of sample rate conversion used when converting and importing audio into a session. It can also be applied when exporting files at different sample rate and when bouncing to disk.

There are five possible settings, ranging from Low (fastest, but lowest quality) to Tweak Head (highest quality, but slowest). The higher the quality of sample rate conversion you choose, the longer Pro Tools will take to process the audio file.

The Sample Rate Conversion Quality options are available in the Import Audio, the Import Session Data, the Export Clips as Files, and the Bounce to Disk dialogs. In each case, the Sample Rate Conversion Quality setting is local to that specific dialog. The Sample Rate Conversion Quality preference only applies to conversion on import by drag and drop.

To set the sample rate conversion quality for importing audio by drag and drop:

- 1 Choose Setup > Preferences and click the Processing tab.
- 2 From the Sample Rate Conversion Quality pop-up menu, select a quality setting. For most applications, the Good or Better setting will yield very good results.



Sample Rate Conversion Quality preference

- 3 Click OK.



The Import Audio, Import Session Data, and Bounce To Disk dialogs provide local controls for sample rate conversion quality.

Bit Depth Conversion and Dither

If the Convert Copied Files on Import preference is enabled (Setup > Preferences > Processing), the following occurs when importing audio files with different bit depths than the current session bit depth:

- When importing audio at a lower bit depth than the session, Pro Tools converts the file to match the session bit depth by adding empty bits. For example, when importing a 16-bit file into a 24-bit session, Pro Tools converts the file to 24-bit.
- When importing audio at a higher bit depth than the session, Pro Tools automatically applies a preset, noise-shaped dither and converts the file to the session bit depth. For example, when importing a 24-bit file into a 16-bit session, dither is applied automatically and the file is converted to 16-bit.

Importing Interleaved Files

When using the Import Audio command, interleaved stereo files are automatically imported to stereo tracks. With Pro Tools HD and Pro Tools with Complete Production Toolkit, greater-than-stereo multichannel audio files are automatically imported to tracks with the corresponding multichannel audio file format.

If the Interleaved option is enabled for the session, or is enabled on import, interleaved files are imported to the session and remain interleaved files. If this option is not enabled, interleaved files are split into multi-mono.

Conversely, split stereo (dual mono) audio files can be automatically imported to stereo tracks. Split stereo audio files must have the channel identifiers “.L” and “.R” in their names (for example, *filename.L* and *filename.R*), and the files must be the same length. In Windows, or in Mac/PC Compatibility mode, these files will have a 3-letter file extension appended after the “.L” or “.R” channel identifier.

Importing Files with Drag and Drop

Pro Tools lets you import audio, MIDI, video, and session files by dragging and dropping files from a DigiBase browser, Windows Explorer, or Mac Finder to the Pro Tools application icon, the session Timeline, a track, the Track List, or the Clip List.

The following figure illustrates some of the options available to import files using drag and drop from DigiBase browsers.

To import files into the Clip List:

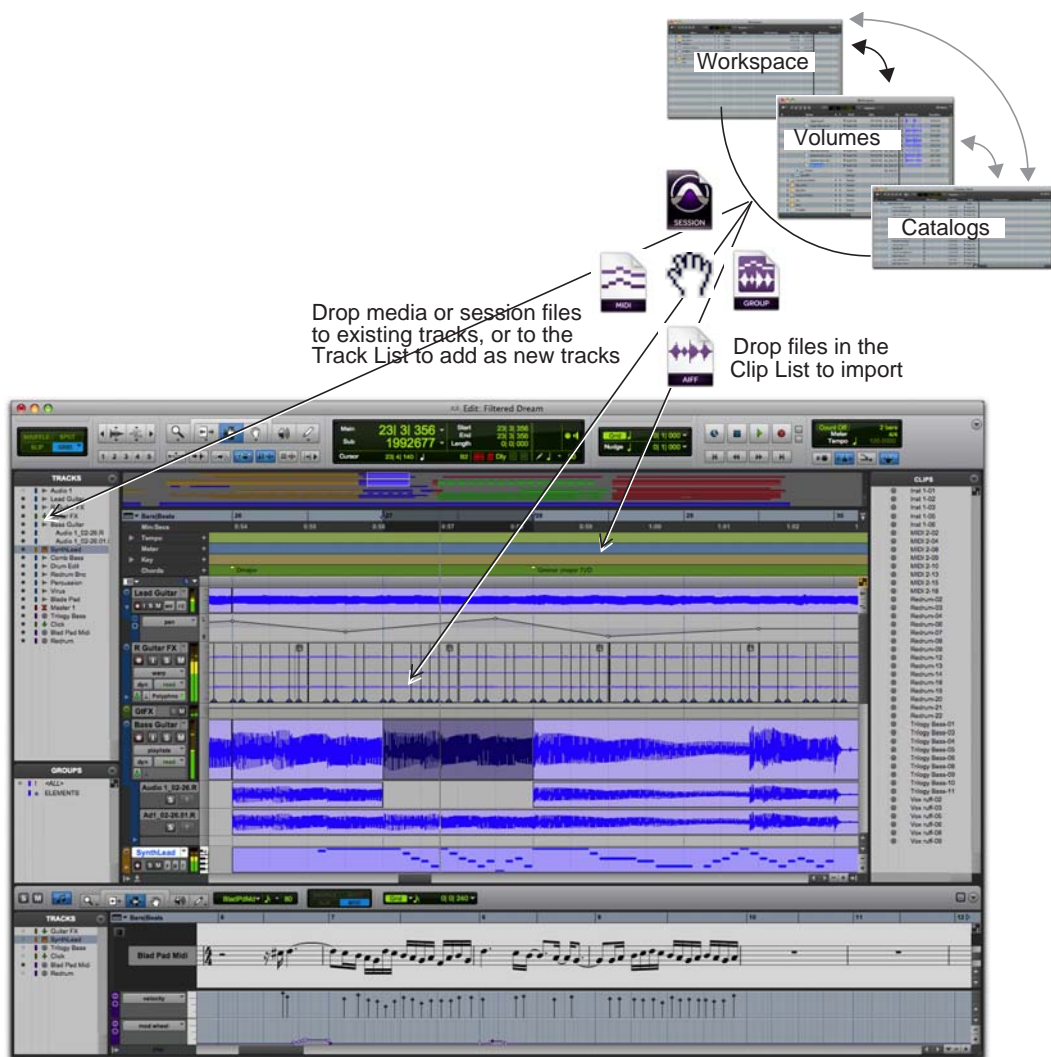
- 1 Select audio, video, MIDI, clip group, REX, or ACID files in a DigiBase browser, or Windows Explorer, or Mac Finder.
- 2 Drag the selected files onto the Clip List.

To import files into an existing track:

- 1 Select the files you want to import in a DigiBase browser, or Windows Explorer or Mac Finder.
- 2 Drag the selected file to a location on an existing, compatible track. The file is imported and placed where it was dropped.

To import files as new tracks:

- 1 Select the files you want to import in a DigiBase browser, or Windows Explorer or Mac Finder.
- 2 Do any of the following:
 - Shift-drag files and drop anywhere in the Edit window.
 - Drop files to the Track List.
 - Drop files to empty space in the Edit window, below or between tracks.



Importing from browsers by drag and drop

⚠ Importing does not always convert or copy audio files. See “Audio Conversion on Import” on page 336.

⚠ Importing using drag and drop does not necessarily bring the Edit window to the foreground. For example, dragging and dropping a file from a browser into a track leaves the source browser in the foreground (not the Edit window). Always verify the active, foreground window or browser before continuing.

To import and spot files into a track:

- 1 Enable Spot mode.
- 2 Select the files you want to import in a DigiBase browser, or Windows Explorer, or Mac Finder.
- 3 Drag the files onto an existing, compatible track. The Spot dialog appears.
- 4 Enter the appropriate timecode location (where you want to spot the imported file).
- 5 Click OK.

To import and spot an audio file by its Waveform in DigiBase browsers:

- 1 In a DigiBase browser, Control-click (Windows) or Command-click (Mac) the file's Waveform display at the approximate reference point you want to use for placement in a track.
- 2 While continuing to press Control (Windows), or Command (Mac), drag the waveform onto an existing audio track (the source audio file and the destination audio track must have the same number of channels).

Snapping to Head and Tail

You can drag and drop files to tracks and have them snap to the head or the tail of the current Edit selection or insertion point. When snapping to head, the beginning of the imported file snaps to the beginning of the Edit selection. When snapping to tail, the end of the imported file snaps to the beginning of the Edit selection.

To import and snap to head:

- Start-drag (Windows) or Control-drag (Mac) a file onto a track.

To snap to head and copy the file to the session Audio files folder:

- Alt-Start-drag (Windows) or Option-Control-drag (Mac) a file onto a track.

To snap to tail:

- Control-Start-drag (Windows) or Command-Control-drag (Mac) a file onto a track.

To snap to tail and copy the file to the session Audio Files folder:

- Control-Alt-Start-drag (Windows) or Command-Option-Control-drag (Mac) a file onto a track.

Elastic Audio on Import

When importing any audio file by drag and drop to an Elastic Audio-enabled track, the audio file is imported and analyzed (if not already analyzed). If the imported audio file is tick-based, it is conformed to tempo using the track's Elastic Audio plug-in. If it is a sample-based audio file, such as a single drum hit or short sound effect, it maintains its original duration. Longer audio files with no detectable tempo also remain sample-based.

You can also import audio by drag and drop to create new tick-based Elastic Audio-enabled tracks.

When importing tick-based audio by drag and drop from DigiBase browsers to the Track List or empty space in the Edit window, Pro Tools creates a new tick-based, Elastic Audio-enabled track using the default Elastic Audio plug-in selected in the Processing Preferences page (see "Elastic Audio Options" on page 348).

If you are importing an audio file by drag and drop from Windows Explorer or Mac Finder to the Track List or to empty space in the Edit window, files are imported as sample-based or as tick-based Elastic Audio depending on the Drag and Drop from Desktop Conforms to Session Tempo preference (see "Drag and Drop From Desktop Conforms to Session Tempo" on page 348).

Importing Elastic Audio from DigiBase to the Clip List

With the Audio Files Conform to Session Tempo option enabled, dragging and dropping tick-based audio from DigiBase browsers to the Clip List (or to the Track List), creates two separate clips in the Clip List. The first is a sample-based whole file clip and the second is a tick-based copy of the same clip.


Importing Tempo from Tick-Based Audio

If there are no tracks in the session, and you import a tick-based audio file to the Clip List, Track List, or empty space in the Edit window, you are prompted to either import the tempo from the file or use the default session tempo. To keep the default session tempo, and have the loop conform to the session tempo, click Don't Import.

If the session already contains at least one track (regardless of track type), you are not prompted to import the tempo from the file and the file is conformed to the session tempo.

Importing Audio Files and Clips Using the Import Audio Command

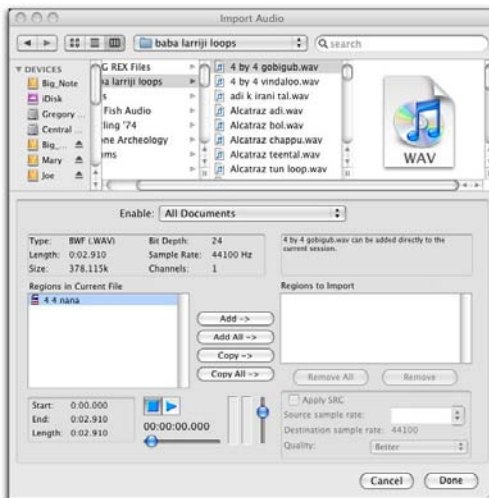
The Import Audio command lets you import audio files or clips into your Pro Tools session.

 *To import entire tracks from other sessions, see “Importing Session Data” on page 356.*

To import audio files or clips into a session using the Import Audio command:

- 1 Choose File > Import > Audio.
- 2 In the Import Audio dialog, locate and select an audio file to display its properties and associated clips.

You can choose to display only a certain file type (such as WAV) by selecting the type from the Show pop-up menu. To display all supported file types, select All Documents from the Show pop-up menu.



Import Audio dialog

In the import list, audio files are distinguished from clips by their icons.



Audio File icon



Audio Clip icon

File and Clip icons in the Import Audio dialog



On Mac, Sound Resource files must have the “.SFIL” extension to be imported by Pro Tools.

- 3 To preview a selected file or clip before you import it, click the Play and Stop buttons in the Import Audio dialog.

Adjust the preview volume with the vertical slider. To navigate to a particular location in the file, use the horizontal slider under the Play and Stop buttons.



The Preview Volume control in the Import Audio dialog also affects the preview volume when auditioning clips in the Clip List.

The audition output path defaults to channels 1–2. For Pro Tools systems with more than 2 channels of output, the audition path can be changed in the I/O Setup (see “Audition Paths” on page 97).

- 4 Do any of the following:

- To place a file or clip in the Import list, select the file and click Add or Convert.
- To import all files and clips in the current directory, click Add All or Convert All.
- To remove a file or clip from the Import list, select it and click Remove.
- To remove all files and clips, click Remove All.



Pro Tools lets you add files to a session that are at a different sample rate than your session. In the comments field of the Import Audio dialog, a warning is posted that these files will play back at the wrong speed and pitch if they are not converted.

- 5 When you have added all audio files and clips to the Import list, you can apply sample rate conversion by doing the following:

- Enable Apply SRC.
- Specify the Source Sample Rate either by typing a number, or by selecting a sample rate from the pop-up menu.
- Select the sample rate conversion quality from the Quality pop-up menu. This setting overrides the Sample Rate Conversion Quality setting in the Processing Preferences page.

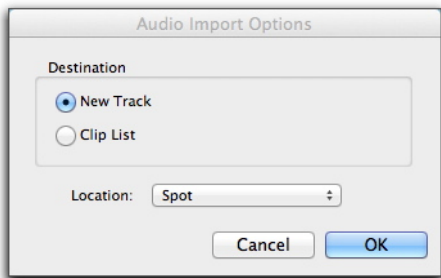
- 6 Click Done.



Press Command+W (Mac) or Alt+E (Windows) to select Done. Press Command+ “.” (Period) (Mac) or Esc to Cancel.

- 7 If you are copying or converting files, choose a location for the new files. Choose a folder on a valid audio drive, such as the Audio Files folder for the current session.

- 8 In the Audio Import Options dialog, select where the imported files will go in the session:



Audio Import Options dialog

New Track Each audio file is imported into its own individual track and into the Clip List.

When importing audio into a track, you can also choose the location in the track where the audio file will begin (such as Session Start).

Clip List Audio files are imported into the Clip List without creating a new track. Imported audio files appear in the Clip List and can then be dragged to audio tracks.

- 9 If you chose to create a new track, choose a location for the imported file in the track:

Session Start Places the file or clip at the start of the session.

Song Start Aligns the beginning of the file or clip to the Song Start point.

Selection Aligns the beginning of the file or clip to the edit cursor or to the beginning of a selection in the Timeline.

Spot Displays the Spot dialog, which lets you spot the file or clip to a precise location based on any of the Time Scales.

- 10 Click OK.

Importing Audio from Audio CDs

Pro Tools lets you import tracks from audio CDs using the same methods that you use to import audio files, as follows:

- Drag CD audio from the CD folder.
- Drag files from DigiBase Browser.
- Use the Import Audio command.

Before importing CD audio, make sure your hard drive has enough space for the converted audio files.



Importing CD audio with either drag and drop method lets you continue working in the session foreground (such as in the Mix or Edit window), while the Task Manager (Window > Task Manager) works in the background (importing and converting the audio until the import is completed). For more information on the Task Manager, see “Task Window” on page 330.


Because the transfer is made in the digital domain, there is no signal loss.

The sample rate for audio CDs is 44.1 kHz. Therefore, if your session’s sample rate is set to 48 kHz or higher, Pro Tools will convert the sample rate for the imported audio. Before importing CD audio, set the Sample Rate Conversion Quality preference accordingly. For more information, see “Sample Rate Conversion Quality” on page 338.


Importing ACID and REX Files

ACID files and REX 1 and 2 files are converted to the session audio file type. Depending on the preferences settings, ACID and REX files can be imported as sample-based clips or as tick-based

Elastic Audio clips. For REX files only, Pro Tools uses any slice data to create Event markers with 100% confidence. ACID files are analyzed for Elastic Audio events just like WAV files, and so events are detected with varying degrees of confidence.

 *For information on Elastic Audio, see Chapter 40, “Elastic Audio.”*

REX files can also be imported as tick-based clip groups.

 *For information on clip groups, see “Clip Groups” on page 847).*

To import ACID and REX files as sample-based clips:

- 1 Choose Setup > Preferences and click the Processing tab.
- 2 Disable the Import REX Files as Clip Groups option.
- 3 Select No Files as the Drag and Drop from Desktop Conforms to Session Tempo preference.
- 4 Click OK to close the Preferences dialog.
- 5 When importing by drag and drop from DigiBase browsers, make sure that the Audio Files Conform to Session Tempo option is disabled.
- 6 Import the ACID and REX files you want by drag and drop from a DigiBase browser or the Desktop, or using the Import Audio command (see “Importing Audio Files and Clips Using the Import Audio Command” on page 342).

To import ACID and REX files as tick-based Elastic Audio clips:

- 1 Choose Setup > Preferences and click the Processing tab.
- 2 Disable the Import REX Files as Clip Groups option.

- 3 Select REX and ACID Files Only or All Files as the Drag and Drop from Desktop Conforms to Session Tempo preference.
- 4 Click OK to close the Preferences dialog.
- 5 Do one of the following:
 - Import the REX files you want by drag and drop from a DigiBase browser
 - Import the REX files you want by drag and drop from the Desktop.
 - Use the Import Audio command (see “Importing Audio Files and Clips Using the Import Audio Command” on page 342).

To import REX files as tick-based clip groups:


- 1 Choose Setup > Preferences and click the Processing tab.
- 2 Select the Import REX Files as Clip Groups option.
- 3 To apply real-time crossfades to the files, enable the Automatically Create Fades option (see “Automatic Fades for Imported REX Files” on page 346).
- 4 Select REX and ACID Files Only or All Files as the Drag and Drop from Desktop Conforms to Session Tempo preference.
- 5 Click OK to close the Preferences dialog.
- 6 Do one of the following:
 - Import the REX files you want by drag and drop from a DigiBase browser
 - Import the REX files you want by drag and drop from the Desktop.
 - Use the Import Audio command (see “Importing Audio Files and Clips Using the Import Audio Command” on page 342).

Automatic Fades for Imported REX Files

If the Import REX Files as Clip Groups option is enabled in the Processing Preferences page, Pro Tools can automatically apply real-time crossfades to the clips or “slices” in imported REX format files.

To apply real-time crossfades to REX files:

- 1 Choose Setup > Preferences and click the Processing tab.
- 2 Enable the Import REX Files as Clip Groups option.
- 3 Enable the Automatically Create Fades option.
- 4 In the Preferences dialog, click the Editing tab.
- 5 Under Default Fade Settings, click REX.
- 6 In the REX Auto-Crossfades dialog, select the shapes you want for crossfades, and click OK.
- 7 Click OK to close the Preferences dialog.

 *Depending on your edits or tempo changes after importing REX files, fades can be deleted and you will have to recreate them manually.*

Importing Multichannel Audio Files from a Field Recorder

Pro Tools lets you use any of its import methods to import monophonic and polyphonic audio files recorded by a field recorder. When you import these types of files, they must be converted to an audio format compatible with Pro Tools.



For more information on importing files from a field recorder, see Chapter 50, “Working with Field Recorders in Pro Tools.”

Importing Monophonic Audio Files

A monophonic audio file contains one mono channel and relevant metadata from a single multichannel recording.

When you import monophonic audio files that were recorded simultaneously, they are converted to multichannel clips and displayed together in the Clip List. Any metadata is also imported with the files.

Importing Polyphonic Audio Files

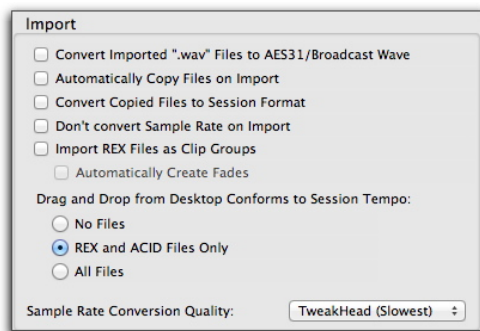
A polyphonic audio file contains multiple mono channels and relevant metadata recorded simultaneously in a multichannel recording.

When imported into Pro Tools, a polyphonic audio file is divided into individual monophonic audio files written to disk—one file for each channel.

Clips for each channel appear in the playlist, and a multichannel clip appears in the Clip List with the channels expandable underneath. Any metadata is also imported with the files.

Import Options and Preferences

Pro Tools provides several options and preferences that affect audio import. Configure Pro Tools to match your most common workflows. For example, if you frequently work by importing REX files for loop-based composition, you can configure Pro Tools to always import REX files to conform to tempo and create new tick-based Elastic Audio tracks.



Import options in the Processing Preferences page

Convert Imported “WAV” Files To AES31/BroadcastWave When selected, this option applies to all newly imported WAV files, making them compliant with the AES31/EBU Broadcast standard.

Automatically Copy Files on Import When selected, all audio files that are imported by dragging and dropping are copied to the current session’s Audio Files folder, regardless of whether the files need to be converted to the current session’s file type, bit depth, or sample rate. Additionally, when selected, the Import Session Data dialog defaults to Copy from Source Media. The Automatically Copy Files on Import preference does not affect the Import Audio command.

Convert Copied Files to Session Format When selected, files that have different file formats from the current session file format are copied and converted to the current session audio file format, bit depth, and sample rate on import. For example, if the session file format is WAV, 24-bit, 48 kHz and you import an AIF, 16-bit, 44.1 kHz file, the file is copied and converted to WAV, 24-bit, 48 kHz on import. When this option is not selected, copied files retain their original format (unless that file format is incompatible with Pro Tools, in which case it must be converted).

Do Not Convert Sample Rate on Import When selected, files with different sample rates than the session sample rate are not automatically converted when imported into the session. This means that files with mis-matched sample rates play back at a different speed (and pitch transpositions than when they were originally recorded (or converted).

Import REX Files as Clip Groups When selected, REX files are imported as clip groups, all the underlying slices are imported as individual clips contained within the clip group. When this option is not selected, importing REX files into a session converts them to the session’s audio file format, the individual slices are consolidated, and the slice information is used for Elastic Audio analysis. These files remain tick-based after import and conversion.

Automatically Create Fades When selected, crossfades are applied automatically to the sliced clips within clip groups created by importing REX files. If the Import REX Files as Clip Groups option is not selected, the Automatically Create Fades option does not apply.

To change the default fade settings for REX files, click the REX button in the Default Fade Settings section on the Editing Preferences page (see “Fades Editing Preference” on page 349).

Drag and Drop From Desktop Conforms to Session Tempo

The Drag and Drop From Desktop Conforms to Session Tempo options determine whether or not REX, ACID, and all other audio file formats dragged and dropped from Windows Explorer or Mac Finder are imported as tick-based Elastic Audio and conformed to the session tempo.

None When enabled, all audio files, including REX and ACID files, are not conformed to the session tempo when imported by drag and drop from Windows Explorer or the Mac Finder. They are imported as sample-based files and converted to the sessions audio file format.

REX and ACID Files Only When enabled, only REX and ACID files are conformed to the session tempo when imported by drag and drop from Windows Explorer or the Mac Finder. REX files are imported either as tick-based Elastic Audio or, if the Import REX Files as Clip Groups option is enabled, as tick-based clip groups.

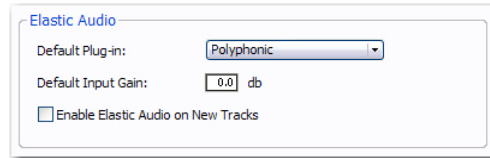
All Files When enabled, all audio files are imported as tick-based Elastic Audio and conform to the session tempo.

Sample Rate Conversion Quality

The Sample Rate Conversion Quality preference determines the quality of sample rate conversion used when converting and importing audio into a session by drag and drop. Sample rate conversion is used in a variety of Pro Tools processes including converting and importing audio files of different formats into a session, and bouncing and saving tracks to a different sample rate or bit depth. The higher the quality of sample rate conversion you choose, the longer Pro Tools will take to process the audio file.

Elastic Audio Options

The Elastic Audio preferences determine which Elastic Audio plug-in is used for preview and import, and whether or not new tracks are created with Elastic Audio enabled using the selected default plug-in.



Processing Preferences, Elastic Audio

Default Plug-In Lets you select any Real-Time Elastic Audio plug-in as the default plug-in for previewing and importing Elastic Audio. The selected default Elastic Audio plug-in is also used when new tracks are created with Elastic Audio enabled. The Elastic Audio Plug-In selector in DigiBase browsers inherits the selected default plug-in. Likewise, changing the selected plug-in in DigiBase browsers updates the selected Default Plug-In in the Processing preferences.

Default Input Gain Lets you attenuate the signal input to Elastic Audio plug-ins by 0 to –6 dB for preview and import. If you experience clipping due to Elastic Audio processing during preview or after import, you may want to set the Default Input Gain to slightly attenuate (lower) the audio signal input for Elastic Audio processing. This preference also applies to any audio imported to an Elastic Audio-enabled track.

If you commit any clips on a track (by disabling Elastic Audio on the track) that were imported with the Default Input Gain applied, their clip-based Input Gain is reset to 0.

The Elastic Properties window inherits the Default Input Gain preference. To apply further clip-based Input Gain for Elastic Audio processing, select the clip and adjust the Input Gain setting in the Elastic Properties window (see “Elastic Properties Window” on page 896).

Enable Elastic Audio on New Tracks When selected, new tracks are created with Elastic Audio enabled. The selected default Elastic Audio plug-in is used. When importing audio to new tracks, new tracks are created with Elastic Audio enabled if this option is enabled.

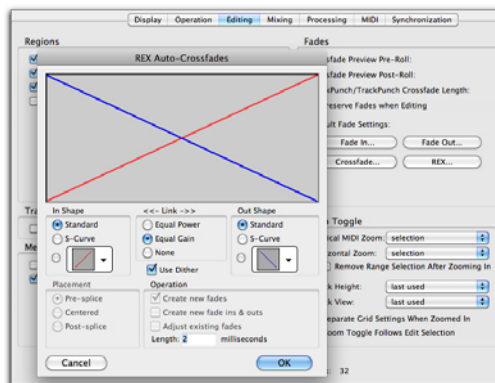
💡 *If the Enable Elastic Audio on New Tracks option is selected, you may want to also select the New Tracks Default to Tick Timebase option in the Editing Preferences page.*

Tracks Preference

When the New Tracks Default To Tick Timebase option is enabled, all new tracks default to ticks. This includes importing audio to new tracks. When deselected, audio, Auxiliary Input, Master Fader, and VCA (Pro Tools HD and Pro Tools with Complete Production Toolkit only) tracks default to samples. MIDI and Instrument tracks always default to ticks.

Fades Editing Preference

The Default Fade Settings for REX files in the Editing preferences lets you select the default envelope shape for fades and crossfades between clips (“slices”) in imported REX files. Fades are only applied to imported REX files if the Import REX Files as Clip Groups option and the Automatically Create Fades option are both enabled on the Processing Preferences page.



REX Auto-Crossfades preference and dialog

Exporting Audio

Pro Tools supports exporting audio clips as audio files, exporting left and right audio files as stereo interleaved files, and exporting clip information.

You can also export audio from Pro Tools by bouncing or consolidating audio tracks. For more information, see “Bounce to Disk” on page 1082 and “Consolidating Clips” on page 607.

Exporting a Clip as a New Audio File

You can export clips as audio files with the Export Clips as Files command. Use this command if you intend to use a clip in other sessions (or other audio applications) without using its parent source file.

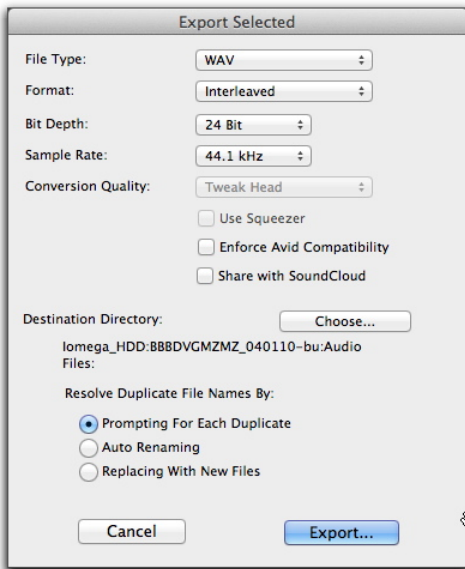
This command also provides a way to convert clips to a different audio format, sample rate, or bit depth.

To export clips as new audio files:

- 1 In the Clip List, select the clips you want to export.

⚠ *Warped clips (Elastic Audio) will be exported unwarped at their original duration.*

- 2 From the Clip List menu, choose Export Clips as Files.



Export Selected dialog


- 3 In the Export Selected dialog, set the File Type, Format, Bit Depth, and Sample Rate. In addition, specify the Conversion Quality, and choose the Destination Directory.

When you export clips to a lower bit depth, Dither (with or without Noise Shaping) is applied as shown in the following table.

Dither and Noise Shaping with Export Selected dialog

Bit Depth	Dither	Noise Shaping
32-bit float to 32-bit float	Yes	Yes
32-bit float to 24-bit	Yes	Yes
32-bit float to 16-bit	Yes	Yes
32-bit float to 8-bit	Yes	No
24-bit to 32-bit float	No	No
24-bit to 24-bit	No	No
24-bit to 16-bit	Yes	Yes
24-bit to 8-bit	Yes	No
16-bit to 32-bit float	No	No
16-bit to 24-bit	No	No
16-bit to 16-bit	No	No
16-bit to 8-bit	Yes	No

The Dither used for any conversion is the Avid Dither plug-in (with or without Noise Shaping enabled).

 For more information about using Dither, see “Dither” on page 979.

- 4 If you are exporting to an 8-bit file, enable the Use Squeezer option. This optimizes the dynamics of the exported audio by preprocessing it using compression, limiting, and gating before conversion to 8-bit resolution (for more information, see “Use Squeezer” on page 1088).
- 5 To share with SoundCloud, select the Share with SoundCloud option (see “Share with SoundCloud” on page 1089).
- 6 Select an option for how Pro Tools should resolve duplicate file names.

Prompting for Each Duplicate Prompts you for a file name for any file that has the same name as a file in your destination directory.

Auto Renaming Automatically changes the name of any duplicate file by adding a number at the end of the file name (such as file_01).

Replacing with New Files Replaces files with the same name with the new files.

- 7 Click Export to export the new audio files.

Exporting Stereo or Multichannel Interleaved Files

You can use the Export Clips as Files command to export audio clips to stereo or multichannel interleaved files for use in other applications. (Pro Tools cannot use interleaved files directly in the Timeline—these must be converted into multiple mono files.) For example, for this to work with a stereo file, the selected clips must have identical names with “.L” and “.R” suffixes (for instance, vocals_01.L and vocals_01.R). These clips appear as a stereo clip in the Clip List.

Pro Tools HD and Pro Tools with Complete Production Toolkit also let you bounce multichannel interleaved files of any supported file type.

To export clips as a stereo or multichannel interleaved file:

- 1 Select the stereo or multichannel audio clip in the Clip List or in the track playlist. If the clips appear on mono tracks in the session, select the two mono clips.
- 2 From the Clip List menu, choose Export Clips as Files.
- 3 In the Export Selected dialog, select Stereo Interleaved in the Format pop-up menu. For multichannel clips, the Stereo Interleaved option produces a multichannel interleaved file.
- 4 Configure any other output settings, then click Export to export the new stereo interleaved file.

Exporting Clip Definitions

Pro Tools stores clip definitions for audio files within each session. If you want to use an audio file’s clips in another session, or with another application that supports them, you can export the clip information.



If you plan to transfer Pro Tools session data to another session, you should export clip definitions for sessions containing multiple takes created with Loop Record.

The Export Clip Definitions command does not export clips as audio files (unlike the Export Clips as Files command). Instead, it stores pointers to the clips within the parent source file.

To export clip definitions for an audio file:

- 1 In the Clip List, select any clips or clip groups for which you want to export definitions. You do not have to select the parent file audio clip.
- 2 Choose Export Clip Definitions from the Clip List menu.
- 3 Click Export.

Importing MIDI Files

You can import Standard MIDI Files (SMF) into your Pro Tools sessions.

Pro Tools provides several ways to import MIDI files into an open session.

- “Importing MIDI Files Using Pro Tools Menu Commands” on page 352.
- “Importing MIDI Files with Drag and Drop” on page 353.

Pro Tools does not import proprietary sequence files. To use sequences from other MIDI applications in a Pro Tools session, you will need to first save them as Standard MIDI Files. See the manufacturer’s documentation for details on saving Standard MIDI Files.

There are two types of Standard MIDI Files, both of which are supported by Pro Tools:

- Type 0 MIDI files store data for all MIDI channels in a single track. When importing these files, Pro Tools separates the data by channel and places each track’s data in separate clips and tracks.
- Type 1 MIDI files, sometimes referred to as multitrack MIDI files, contain multiple tracks of MIDI data. When importing these files, each track’s data is placed on its own new MIDI track in the Pro Tools session.

Importing MIDI Files Using Pro Tools Menu Commands

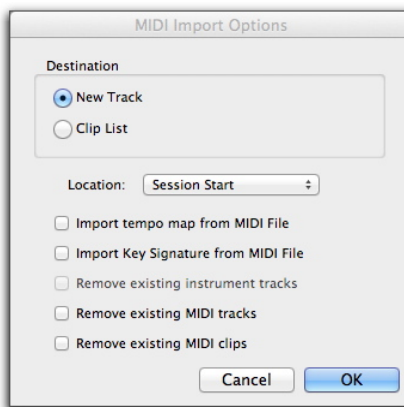
Pro Tools provides commands to import MIDI files.

To import Standard MIDI Files into a session using the Pro Tools File menu:

- 1 Choose File > Import > MIDI and select the file you want to import.
- 2 In the MIDI Import Options dialog, choose where the imported file will go:

New Track Creates a new track where the file will be imported.

Clip List Imports the file into the Clip List, where it will be available to place into tracks.



MIDI Import Options dialog

- 3 If you chose to create a new track, choose a location for the imported file in the track:

Session Start Places the file or clip at the start of the session.

Song Start Aligns the beginning of the file to the Song Start point.

Selection Aligns the beginning of the file to the edit cursor or to the beginning of a selection in the Timeline.

Spot Displays the Spot dialog, which lets you spot the file to a precise location based on any of the Time Scales.

4 Select any of the following Import options:

Import Tempo Map From MIDI File When selected, overwrites any existing tempo and meter map with tempo and meter information read from the MIDI file.

Import Key Signature From MIDI File When selected, overwrites any existing key signatures with key signature information read from the MIDI file.


Remove Existing Instrument Tracks When selected, deletes any existing Instrument tracks. Selecting this option does not remove any current MIDI tracks. All existing MIDI clips will be left in the Clip List.

Remove Existing MIDI Tracks When selected, deletes any existing MIDI tracks. Enabling this option does not remove any current Instrument tracks. All existing MIDI clips will be left in the Clip List.

Remove Existing MIDI Clips When selected, deletes existing MIDI clips (all data on all MIDI and Instrument tracks) but leaves existing MIDI and Instrument tracks in place.

5 Click OK.

The MIDI file will be imported according to the settings in the Import MIDI Settings dialog.

 *If the Standard MIDI File contains markers, they are only imported if the current session does not contain any markers.*

6 In the Mix window, click the MIDI Output selector for each new track and assign a MIDI instrument and channel.

Importing MIDI Files with Drag and Drop

You can drag and drop MIDI files from a DigiBase browser, Windows Explorer, or Mac Finder to the Timeline, a track, the Track List, or the Clip List.

To import MIDI into the Clip List:


- 1 Select MIDI files in a DigiBase browser, or Windows Explorer, or Mac Finder.
- 2 Drag the files onto the Clip List of the current session.

To import MIDI into an existing track:

- 1 Select MIDI files in a DigiBase browser, Windows Explorer, or Mac Finder.
- 2 Drag the files onto an existing track in the Edit window of the current session.

To import MIDI into new tracks:

- 1 Select MIDI files in a DigiBase browser, Windows Explorer or Mac Finder.
- 2 Do one of the following:
 - From the DigiBase browser, Shift-drag the files anywhere in the Edit window of the current session.
 - Drag the files to the Timeline of the current session.
 - Drag the files to the Track List.

 *For more information on using DigiBase browsers, see “DigiBase” on page 285.*

Exporting MIDI Files

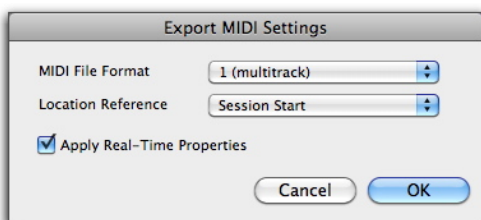
To export a session's MIDI tracks for use in another MIDI application, or for playback with an external (hardware) MIDI sequencer, you can export Pro Tools MIDI and Instrument tracks as a Standard MIDI File.

MIDI can be exported from Pro Tools as a merged, single, multichannel track (Type 0), or as multiple tracks (Type 1).

If your Pro Tools session uses key signatures and meters, they are exported with the MIDI file.

To export all MIDI and Instrument tracks in the current session:

- 1 Make sure to unmute any MIDI tracks in the session that you want included in the exported MIDI file. (Or, conversely, mute any MIDI tracks you do not want included in the exported MIDI file.) For Instrument tracks, enable or disable the MIDI mute button (Instruments view).
- 2 Choose File > Export > MIDI. The Export MIDI Settings dialog opens.



Export MIDI Settings dialog

- 3 From the MIDI File Format pop-up menu, select 1 (multitrack) or 0 (single track).
- 4 If the Song Start time is different from the Session Start time, select Session Start or Song Start from the Location Reference pop-up menu.

- 5 Enable or disable the Apply Real-Time Properties option.
- 6 Click OK.
- 7 Specify a folder destination and name for the MIDI file.



Pro Tools automatically adds the “.mid” extension when exporting MIDI files.

- 8 Click Save.

Pro Tools exports all unmuted MIDI and Instrument tracks in the current session to a Standard MIDI File and writes it to your hard drive. Exported MIDI information includes notes, controller events, program changes, and System Exclusive data, as well as events for tempo, meter, and markers.

The SMPTE start time for the session or the song (depending on the selection from the Location Reference pop-up menu) is also exported. This ensures that the exported tracks, when played from another MIDI application, will align with the correct SMPTE frames, and also synchronize correctly to tape and video devices, or Pro Tools.

See your third-party MIDI sequencer documentation to determine whether it supports importing SMPTE start times from MIDI files.

Items Not Exported with MIDI Files

Mute automation and muted clips do not affect exported MIDI. As long as a MIDI track is not muted by clicking its Mute button, or an Instrument track is not muted by clicking its MIDI Mute button (Instruments view), all of its MIDI data is exported.

Chord symbols and chord diagrams are not exported with MIDI files.

When exporting MIDI files from Pro Tools, device assignments for tracks are not retained (though channel assignments are). If you export MIDI or Instrument tracks from Pro Tools and later re-import them, you will need to reassign the tracks to devices in your studio.

All playlist information for MIDI and Instrument tracks is lost when exporting. For example, tracks that previously contained dozens of MIDI clips will be flattened and only contain single clips after exporting and re-importing.

Exporting Individual MIDI and Instrument Tracks

You can also export individual MIDI and Instrument tracks as MIDI files. This can be useful for storing libraries of your favorite MIDI sequences or Sysex data (such as bulk or individual patch dumps for your external MIDI devices), or for importing MIDI into notation applications (other than Sibelius).

To export a single MIDI or Instrument track as a MIDI file:

- 1 Do one of the following:
 - Right-click the Track name of an unselected track in the Edit or Mix window, or in the Track List.
 - In the Track List, or Mix or Edit window, Control-Right-click (Windows) or Command-Right-click (Mac) the track name.
- 2 From the Right-click menu, select Export MIDI.
- 3 Set the Export MIDI settings in the Export MIDI Settings dialog.
- 4 Click OK.
- 5 In the Save dialog, type a name for the MIDI file, specify where you want to save it, and click Save.



Alt-Right-click (Windows) or Option-Right-click (Mac) to export all tracks to a single MIDI file.

To export all selected Pro Tools Instrument or MIDI tracks as a MIDI file:

- 1 Select the tracks you want to export to a MIDI file.
- 2 Right-click the Track name of one of the selected tracks in the Edit or Mix window, or in the Track List.
- 3 From the Right-click menu, select Export MIDI.
- 4 Set the Export MIDI settings.
- 5 Click OK.
- 6 In the Save dialog, type a name for the MIDI file, specify where you want to save it, and click Save.



Alt-Shift-Right-click (Windows) or Option-Shift-Right-click (Mac) to export all selected tracks as a single MIDI file.

Exporting Sibelius Files

Pro Tools can export the score of your session as a Sibelius file (.sib). You can choose to export the score as a Sibelius file for later use or score transfer, or to open the score in Sibelius immediately (if Sibelius) is installed on your computer. Sibelius uses the Pro Tools transcription of MIDI in your session as seen in the Pro Tools Score Editor window (for more information, see “Exporting Scores” on page 752).





Sibelius 5.x or higher is required to open .sib files exported from Pro Tools.

Importing Session Data


You can import entire tracks from other Pro Tools sessions into the current Pro Tools session using the **Import Session Data** command or drag and drop.

With Pro Tools, you can import tracks and you can select specific session data (such as automation and routing) to import. You can also import main playlist options—either replacing existing options or overlaying elements onto existing tracks.

To import tracks or their attributes:

- 1 Open or create a new session.
- 2 Do one of the following:
 - Choose **File > Import > Session Data**, select the session to import data from, and click **Open**.
 - Drag the session file whose tracks or attributes you want to import from a DigiBase browser, Windows Explorer, or Mac Finder into empty space in the Edit window or to the Track List.
- 3 If the **Fader Gain** setting of the session is different, you will be prompted to keep or change the **Fader Gain** before the **Session Data** dialog opens.
- 4 In the **Source** section, select tracks to import by clicking the pop-up menu to the right of each track name and selecting **New Track**.
 -  *To select multiple tracks, Alt-click (Windows) or Opt-click (Mac) on any track pop-up menu and select **Import As New Track**.*
 -  *If the destination Pro Tools system does not support surround mixing, surround tracks are not displayed in the **Source Track List**.*
- 5 For each track you select, you can choose to import it as a new track, or choose a destination track from the corresponding pop-up menu. Click **Match Tracks** to automatically match source and destination tracks with the same names.
- 6 Select any additional track data you want to import from the **Track Data to Import** pop-up menu.
- 7 Select from among the **Main Playlist Options** to choose how you want to import the source tracks.
- 8 If applicable, choose options for how media files should be imported from the **Audio Media Options** and the **Video Media Options** pop-up menus.
- 9 Choose the **Timecode Mapping Options** for imported data.
- 10 If the sample rates of the sessions are different, select the sample rate for the source session from the **Source Sample Rate** pop-up menu.
- 11 To import the meter and tempo maps from the source session, select the **Import Tempo/ Meter Map** option.
- 12 To import key signatures from the source session, select the **Import Key Signature Map** option.

- 13 To import Markers and Memory Locations from the source session, select the Import Marker/Memory Locations option.
- 14 To import Window Configurations, select the Import Window Configurations option.
- 15 With Pro Tools HD, select the Import Mic Pre Settings option to import any Mic Pre settings from the source session.
- 16 Click OK when you are finished.
- 17 If you chose to copy or consolidate media, choose a location to place the media files.

 *Imported tracks are made inactive if their source media is unavailable, or if the current session does not contain an equivalent output path.*

Importing Grouped Playlists from Other Sessions

You can import tracks that use Grouped Playlists from another Pro Tools session, and the playlist grouping function will remain intact for those imported tracks. There is, however, a restriction for importing from pre-Pro Tools 6.1 sessions: After importing a partial set of grouped playlists (such as tracks 1–7 of a 10-track group), you cannot subsequently import tracks 8–10 and have them rejoin the playlist group for tracks 1–7.

Importing Sessions and Tracks by Drag and Drop

Session files can be dragged into the current session to import (and spot) audio, video, MIDI, clip group, REX and ACID files, tracks, and session data.

- Dragging a session to the Clip List imports all the clips from that session (without importing tracks).
- Dragging a session to a track in Pro Tools lets you import tracks.
- Dragging a session to a track playlist in Pro Tools opens the Import Session Data dialog, letting you select tracks and attributes to import. The imported session data will begin wherever you drop the session in the Timeline.

To import tracks and other session data by drag and drop:

- 1 Open a browser.
- 2 Drag a Pro Tools session file, or an AAF or OMF sequence, into the current session, as follows:
 - Drag onto an existing track to overlay or overwrite data on the target tracks. Hold the Shift key while dragging if you intend to replace the current track playlists with those being imported (the Shift key pre-configures the settings in the Import Session Data dialog).
 - Drag to empty space in the Edit window to create new tracks for the imported session data.
 - Configure the Import Session Data options (see “Import Session Data Dialog” on page 358).

Copying During Import

If no conversion is necessary, and the files reside on a suitable Performance volume, Pro Tools references the original version of the media. You can also choose to copy media while importing by using key commands, or enabling the Automatically Copy Files on Import preference. Copies are created in the session's Audio Files Folder.

To manually copy files on import:

- Alt-drag (Windows) or Option-drag (Mac) the files. A copy is created in the session Audio Files folder.

When importing sessions or tracks, the Import Session Data dialog lets you specify whether to reference the source media, or copy it.

To automatically copy files on import:

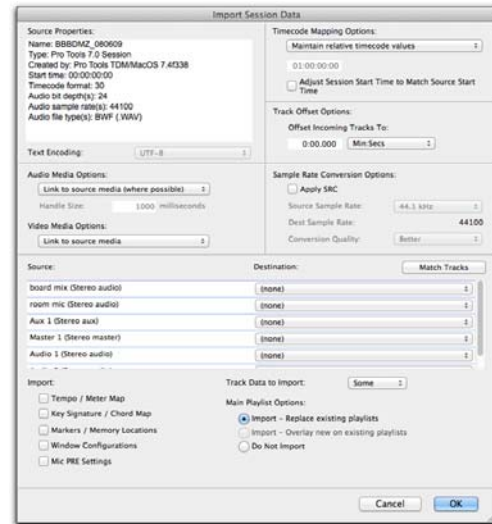
- 1 Choose Setup > Preferences, and click the Processing tab.
- 2 Select Automatically Copy Files on Import.
- 3 Click OK to close the Preferences dialog.

Using Undo after Importing

Using Undo after importing any files to the Timeline removes the files from the Timeline. However, the files remain in the session (in the Clip List and Project browser) and are offline. If you do not remove or delete the files from the session manually, Pro Tools will report them as missing files the next time the session is opened.

Import Session Data Dialog

The Import Session Data dialog lets you view the properties of the source session, select which tracks to import, and with Pro Tools HD, choose which attributes of those tracks you want to import into the current session.



Import Session Data dialog (Pro Tools HD)

Source Properties

The Import Session Data dialog displays properties for the source session. These properties include source session name, session type, start time of the session, audio bit depth, and sample rate. For Pro Tools 5.1 or higher sessions, the program that created the session and the session's audio file type are listed.

Text Encoding

Pro Tools allows entry and display of any language characters supported in Unicode anywhere in the Pro Tools application. This lets you use multiple languages in session names, and in path names, file names and clip names.

However, Pro Tools 7.3.x and lower does not support Unicode. When importing data from sessions or OMF sequences created or saved with older versions of Pro Tools, you may need to identify the language encoding used in the imported elements.

To choose the language encoding when importing data from a legacy Pro Tools session:

- 1 Choose File > Import > Session Data.
- 2 Choose the language used in the legacy session from the Text Encoding pop-up menu.

Audio Media Options


The following Audio Media Options are available in the Import Session Data dialog:

Link to Source Media (Where Possible) This option lets you avoid duplicating audio files by referring to the original files when possible. If the source files do not reside on supported playback media (such as a CDs or DVDs), or if they require bit depth or sample rate conversion, the source files are copied instead. This option allows the current session to refer to files that do not match the current session's audio file format.

Copy from Source Media This option copies all audio files related to the imported tracks from the source media to a new specified location, and converts the files to the current session's audio file format, bit depth, and sample rate if necessary. This is useful if you are importing tracks from a source such as CD or DVDs or shared storage, and you want to place the audio files on a different hard drive.

Consolidate from Source Media This option consolidates audio while copying it. This is useful if you want to copy only the clips of the audio files used in the source tracks, without copying unused audio. This option copies and converts consolidated audio to the current session's audio file format, bit depth, and sample rate if necessary.

When you choose this option, you can also choose the Handle Size (in milliseconds) applied to consolidated audio. *Handle* is the amount of the original audio file that is preserved before and after each clip in case you need to make any edits (such as applying fades or trimming) to the new clips.

 *Consolidate From Source Media is not available when importing Elastic Audio tracks.*

Force to Target Session Format This option copies and converts any files that do not match the current session's file format, bit depth, and sample rate. Files that do match the current session's file type, bit depth and sample rate are referred to directly and not copied.

Video Media Options

In the Import Session Data dialog, you can either choose to leave video media files in their original locations or copy them to a new location. This is useful if you are importing tracks from a source such as CDs or DVDs or shared storage, and you want to place video files on a different drive.

Link to Source Media

Select this option to avoid duplicating video files by referring to the original files.

Copy from Source Media

Select this setting to copy all video files related to the imported tracks from the source media to a new specified location.

Import as Offline Satellite Media (Pro Tools HD Only)

Select this option to import a video track with offline media. You will be able to see cuts and clip names, but the video media remains offline. You can view the video media on a connected Video Satellite system. This option is only available when New Satellite Track is selected for the video track.

Timecode Mapping Options

In the Import Session Data dialog, you can specify where the imported tracks are placed in the current session. Times are indicated in timecode.

The following Timecode Mapping Options are available:

Maintain Absolute Timecode Values This option places tracks at the locations where they were located in the source session. For example, if the current session starts at 00:01:00:00, and the session from which you are importing starts at 10:00:00:00, the earliest imported tracks can appear in your session is 9 hours and 59 minutes after the start of the session.

Maintain Relative Timecode Values This option places tracks at the same offset from session start as they had in the source session. For example, if the source session starts at 01:00:00:00 and contains a track that starts at 01:01:00:00, and the current session start is 02:00:00:00, the track will be placed at 02:01:00:00 in the current session.

Map Start Timecode To This option places tracks relative to their original session start time. (Times are expressed in hh:mm:ss:ff) For example, if the current session starts at 00:01:00:00, and the session from which you are importing starts at 10:00:00:00, you can reset the start timecode to 00:01:00:00, to avoid placing files 9 hours and 59 minutes from the start of your session.

Adjust Session Start Time to Match Source Start Time

When selected, the Adjust Session Start Time to Match Source Start Time option lets you automatically set the start time of the current Pro Tools session to match the start time of the session, or AAF or OMF sequence you are importing.

Track Offset Options

In the Import Session Data dialog, you can specify a track offset in addition to any offset incurred with the Timecode Mapping Options. Any imported audio is offset in the current session's Timeline by the specified amount. You can enter values in Minutes:Seconds, Bars|Beats, Samples, Timecode, or Feet/Frames.

Sample Rate Conversion (SRC) Options

In the Import Session Data dialog, you can set options that control how sample rate conversion is applied to imported audio files. If the source session and the current session have the same sample rate, this portion of the dialog is unavailable.

The following Sample Rate Conversion (SRC) Options are available:

Source Sample Rate For audio files created in any session, no matter what the session sample rate is, you can have the sample rate conversion process treat the files in several ways to compensate for pull up, pull down, and NTSC or PAL frame rates. This setting allows you to choose the sample rate from which you want the sample rate conversion process to start.

Destination Sample Rate The destination sample rate is always set to the sample rate of your current session.

Conversion Quality This option lets you set the quality of the sample-rate conversion process (see "Sample Rate Conversion Quality" on page 338).

Source Tracks

This area of the Import Session Data dialog lists the tracks in the source session that can be imported, each with a corresponding pop-up menu.

Operation/Destination Track Pop-Up Menus

In the Import Session Data dialog, each source track has a corresponding pop-up menu that lists options for importing the track as well as for possible destination tracks in the current session. The pop-up menus display the following items:

Do Not Import Neither the source track nor any of its attributes are imported.

Import as New Track The source track and all attributes selected in the Track Data to Import pop-up menu are imported into a new track in the current session.

Destination Track Names The names of possible destination tracks in the current session are listed at the bottom of the pop-up menu. Imported playlists and all attributes selected in the Track Data to Import pop-up menu will be placed in the destination track you select.

Only destination tracks that match the track type (audio, Instrument, MIDI, Auxiliary Input, or Master Fader) and the channel format (mono, stereo, or any of the supported multichannel formats) of the source track appear in the pop-up menu.

Matching Tracks

In the Import Session Data dialog, you can make sure track names match when you are importing playlists from source tracks with the same name as destination tracks in the current session (such as a new cut of a scene). Click **Matching Tracks** to automatically match the track names. Tracks must have the same name, track type, and channel format to be automatically matched.

Track Data to Import

In the Import Session Data dialog, the **Track Data to Import** pop-up menu is where you select which attributes of the selected tracks you want to import into the current session.

Selected attributes are applied to all tracks that you choose to import into the current session.

Replacing Track Attributes

When you import an attribute of the source track into an existing track in the current session, it replaces the corresponding attribute in the destination track. If you choose not to import an attribute of the source track, the corresponding attribute in the destination track is retained.

Replacing Track Path Names

When you import a track's input, output, send output or hardware insert assignments, any custom path names and I/O configurations from the source session are not imported. You can import path names and I/O configurations by importing **I/O Setup** settings. For more information, see "Factory I/O Settings" on page 118.

Selecting Track Data to Import

You can select **All**, **None**, or any combination of the listed track data to import. The following are available for import:

All Imports all of the source track's playlists, according to the **Main Playlist Option** setting, and all of the attributes in the **Track Data to Import** list.

None Imports only the source track's main playlist, according to the **Main Playlist Options** setting, and no other attributes of the source track.

Alternate Playlists Imports all of the alternate playlists from source track. The alternate playlists appear in the playlist pop-up menu of the destination track.

Clips and Media Imports all of the audio files or clips in the source track, and places them in the **Clip List**.

Clips Gain Imports the clip gain settings for all imported audio clips.

Volume Automation and Setting Imports the source track's Volume fader setting and any automation data on the track's Volume Automation playlist. The Volume fader setting and any Volume automation data in the destination track are replaced.

Pan Automation and Setting Imports the source track's Pan Slider settings and any automation data on the track's Pan Automation playlist. The Pan Slider setting and any Pan automation data in the destination track are replaced.

Mute Automation and Setting Imports the source track's Mute setting and any automation data on the track's Mute automation playlist. The Mute setting and any Mute automation data in the destination track are replaced.

Main Output Assignments Imports the source track's channel output assignments, including any multiple output assignments. The channel output assignments in the destination track are replaced.

Send Output Assignments Imports the source track's send output assignments. Any Send output assignments in the destination track are replaced.

Plug-In Assignments Imports the source track's plug-in assignments. Any plug-ins in the destination track are removed, and their associated settings and automation are lost.

If the source track uses a plug-in that is not available on the destination system, it appears in the destination track and is made inactive.

Plug-In Settings and Automation When the source track's plug-in assignments are imported, this option imports the track's plug-in settings and any automation data associated with the plug-ins. If no plug-in assignments are imported, this option has no effect.

Elastic Audio Track State Imports the source track's Elastic Audio track state. Any Elastic Audio settings in the destination track are replaced.

HW Insert Assignments Imports the source track's hardware Insert assignments. Any Insert assignments in the destination track are replaced.

Voice Assignments Imports the source track's voice assignment from the source session. Any voice assignments in the destination track are replaced.

Input Assignments Imports the source track's channel input assignment. The Input assignment in the destination track is replaced.

Side-Chain Assignments When the source track's plug-in assignments are imported, this option imports any side-chain assignments associated with the plug-ins. If no plug-in assignments are imported, this option has no effect.

Track Active State Imports the active/inactive state of the source track from the source session.

Track Comments Imports the track comments associated with the source track. Any comments in the destination track are replaced.

Track Colors Imports the track color associated with the source track. Any color for the destination track is changed.

Record Safe/Solo Safe Settings Imports the record safe and solo safe settings of the source track from the source session. Any record safe or solo safe settings in the destination track are replaced.

Track View Settings Imports the track height and playlist view of the source track from the source session.

Mix/Edit Groups Imports track groups from the source session.

ICON Custom Fader Groups (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) Imports any ICON Custom Fader Groups from the source session.

ICON Automation Snapshots (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) Imports any ICON Automation Snapshots from the source session.

HEAT Switch Settings (Avid HDX and Pro Tools|HD Systems with the HEAT Software Option Only) Imports any stored HEAT switch settings from the source session.

Import Options

The following Import Options are available in the Import Session Data dialog:

Import Tempo/Meter Map Imports the meter and tempo maps, as they appear in the Tempo and Meter Conductor rulers, from the source session. Any Tempo or Meter events in the destination session are replaced.

Import Key Signature/Chord Map Imports all key signatures (if present) and chord markers into Pro Tools with the imported session data. Any key signatures and chord markers in the destination session are replaced.

Import Marker/Memory Locations Imports markers and Memory Locations as they appear in the Marker ruler, from the source session. Any markers and Memory Locations in the destination session are retained. Imported marker and Memory Locations are assigned the next available Marker/Memory Location numbers.

Import Window Configurations Imports the Window Configurations from the source session.

Import Mic Pre Settings Imports any Pro Tools Mic Pre settings from the source session. Any Mic Pre settings in the destination session are replaced.

Import HEAT Master Settings (Pro Tools HD with HEAT Only) Imports any HEAT Master settings from the source session, including Bypass, Drive, and Tone settings. The HEAT Master settings in the destination session are replaced.

Main Playlist Options

In the Import Session Data dialog, you can select from the following options to control how the main playlist from each source track is imported to the destination track in the current session.

Import – Replace Existing Playlists Imports the main playlist from the source track. When you import the playlist into an existing track, the main playlist in the destination track is deleted and replaced with the imported playlist.

- ◆ If you select this option and import all of the source track's attributes, this is equivalent to importing the entire track.

- ◆ If you select this option and do not import any of the source track's attributes, you replace the audio playlists while keeping your current mixer settings.

Import – Overlay New On Existing Playlists Imports the main playlist from the source track. When you import the playlist into an existing track, any existing playlist data that overlaps data imported from the source track is trimmed and replaced with the imported data. Any playlist data in the destination track that does not overlap remains in the destination track.

Do Not Import Does not import the main playlist from the source track. No audio is imported; only the attributes selected in the Track Data to Import list are imported to the selected tracks. When selected, importing all of the source track's input, output, send, insert and plug-in attributes is equivalent to importing a channel strip.

Importing AAF and OMF Sequences

Pro Tools lets you open AAF and OMF sequences as new Pro Tools sessions, or you can import AAF and OMF sequences into existing Pro Tools sessions. Pro Tools can import AAF and OMF sequences exported from other Pro Tools sessions, from Avid Media Composer, or from third-party applications (such as Final Cut Pro, Logic Audio, Adobe Premiere Pro, and Nuendo).

When importing AAF sequences generated from an Avid video editing application, Pro Tools can import mono, stereo, and 5.1 and 7.1 surround audio tracks. Mono tracks with 5.1 or 7.1 surround panning can also be imported, with panning information intact. (Greater-than-stereo multichannel formats are supported with Pro Tools HD and Pro Tools with Complete Production Toolkit only.)

When opening and importing an AAF or OMF sequence, the New Session dialog opens and prompts you to name and save the sequence as a new session. Once you name and save the new session, the Import Session Data dialog opens. For more information, see “AAF/OMF Source Track Translation Settings” on page 373.

Pro Tools can import the following types of files sourced from Avid editors:


- AAF or OMF sequences (including those with embedded audio)
- Individual Avid video files in the MXF or OMF format
- OMF and MXF audio files

▲ *Multi-channel import and export are only possible with AAF sequences.*

▲ *Avid Mojo SDI or Avid Mojo is required for importing MXF and OMF video.*

To import AAF or OMF sequences into Pro Tools, do one of the following:

- Use the File > Import > Session Data command.
- Use the File > Open Session command.
- Drag and drop them from any DigiBase browser or the desktop.

 *For more information, see “Importing an AAF or OMF Sequence into an Existing Session” on page 367.*

To import individual Avid MXF or OMF video files into Pro Tools, do one of the following:

- Use the File > Import > Video command.
- Drag and drop them from any DigiBase browser or the desktop.

To import individual OMF or MXF audio files into Pro Tools, do one of the following:

- Use the File > Import > Audio command.
- Drag and drop them from any DigiBase browser or the desktop.

Importing an AAF or OMF Sequence as a Pro Tools Session

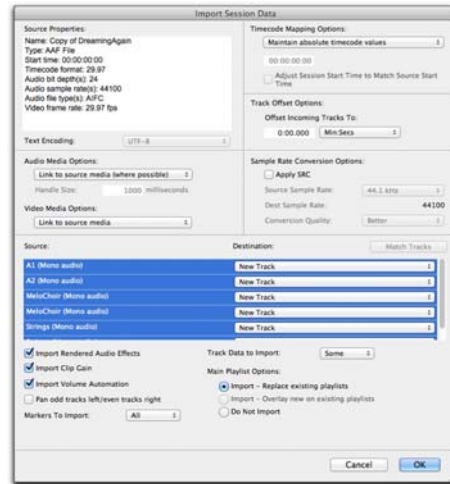
The easiest way of using Pro Tools to edit a sequence exported from an Avid application (such as Media Composer) is to open it as a new session.

⚠ *Pro Tools cannot play video files embedded within an AAF or OMF sequence.*

To open and import an AAF or OMF sequence in Pro Tools:

- 1 Launch Pro Tools.
- 2 Choose File > Open Session.
- 3 In the Open Session dialog, navigate to the AAF or OMF sequence you want to import.
- 4 Click Open.
- 5 Select the Audio File Type, Sample Rate, and Bit Depth to use for the session.
- 6 To create interleaved multichannel audio files in the session, select Interleaved.
- 7 Click OK.
- 8 Name your session in the Save As field.
- 9 Click Save. The Import Session Data dialog opens.

💡 *You can open and import OMF or AAF sequences that reference audio files with mixed sample rates or bit depths.*



Import Session Data dialog


- 10 Depending on how you want to import the audio, select the appropriate option from the Audio Media Options pop-up menu (see “Audio Media Options” on page 369).
- 11 Depending on how you want to import the video, select the appropriate option from the Video Media Options pop-up menu (see “Video Media Options” on page 370).
- 12 Change other settings and options as necessary (see “Import Options when Importing AAF or OMF Sequences” on page 369).
- 13 Click OK.

Pro Tools creates a new session file in the location you’ve specified, along with the following new items:


- Audio Files folder
- Clip Groups folder
- Session File Backups folder
- Video Files folder
- cache.wfm file

This session will match the audio file type, sample rate, and bit depth of the audio in the OMF or AAF you selected. Pro Tools does not import video embedded in a sequence.

If a Video Satellite system is available, Pro Tools can import the video metadata from a sequence to a satellite track. In this case, the video itself is played back from the Video Satellite machine, in tandem with Pro Tools playback.

 *For more information, see the Video Satellite Guide.*

A *During the import, if there are any errors, clip name truncations, or other notes (such as missing effect renderings), a dialog appears asking you if you want a detailed report of the changes. Click Yes and choose where you want to save the log. The log is a text file that you can open in any text editing application.*

 *Every AAF and OMF file has a filename and unique identifier stored in the AAF and OMF metadata, and a name which is displayed on the desktop. Truncating a clip name in the translation process does not change the AAF or OMF filename or unique ID.*

Multi-Cam Resolution Files


On an Avid system, Multi-Cam Resolution files display multiple individual camera angles of the same scene. The Avid operator chooses which of the Multi-Cam files (and therefore camera angles) will be dominant, at the time of creating an AAF or OMF export. When you import an AAF or OMF sequence into a Pro Tools session, only the clip representing the dominant camera angle will be displayed.

Importing an AAF or OMF Sequence into an Existing Session

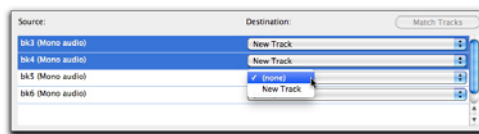
You can import an AAF or OMF sequence containing audio and video media into an existing Pro Tools session.

To open and import audio and/or video tracks from an OMF or AAF sequence:

- 1 Launch Pro Tools, and open an existing Pro Tools session.
- 2 Choose File > Import > Session Data, and select the AAF or OMF sequence that you want to import.

 *You can also open an AAF or OMF sequence by dragging it from any location on your computer or the DigiBase browser to the Pro Tools Timeline.*


- 3 In the Import Session Data dialog, deselect any source tracks that you do *not* want imported. (If importing Session Data from AAF or OMF sequences, all tracks are selected by default. If you are importing tracks from a Pro Tools session, no tracks are selected by default.)



Source Tracks

- 4 Select the AAF/OMF translation settings (see “AAF/OMF Source Track Translation Settings” on page 373).
- 5 Select the Audio Media Options (see “Audio Media Options” on page 369).
- 6 Select the Video Media Options (see “Video Media Options” on page 370).
- 7 Select the Timecode Mapping Options (see “Timecode Mapping Options” on page 371).

- 8 Set the Track Offset Options (see “Track Offset Options” on page 371).
- 9 Set the Sample Rate Convert Options (see “Sample Rate Conversion Options” on page 372).
- 10 Change other settings and options as necessary (for more information about the Import Session Data dialog, see “Import Session Data Dialog” on page 358).
- 11 Click OK.

 *If there are any errors or clip name truncations, a dialog will appear asking you if you want a detailed report of the changes. Click Yes and choose where you want to save the log.*

- 12 If your audio or video source media is on a volume that is not suitable for playback (shown as a Transfer volume in the Workspace browser), Pro Tools displays a dialog that guides you to copy the media to a volume designated for Playback or Record. (Click Yes.)


Pro Tools imports the audio and video media to the Timeline. Audio tracks with mixed sample rates are automatically converted to the same sample rate as the session.

Now you are ready to edit or mix the audio files in Pro Tools.

Importing AAF/OMF Audio Sequences with Mixed Sample Rates or Bit Depth

You can open and import AAF or OMF sequences with mixed sample rates and bit-depths into Pro Tools.

Audio files that are not of the same sample rate as a session must be converted to be used with the session. When an audio file is converted, a new file with the correct file type, and sample rate is created and placed in a folder you choose. Audio files with mixed bit-depths (and matching sample rates) can be imported without conversion.

 *You can use the Source Sample Rate settings to compensate for any pull up or pull down factors that may have been applied to the audio prior to importing. In a sequence with files of mixed sample rates, set the Source Sample Rate in proportion to the Target sample rate of the session, and the pull up or pull down compensation will be applied correctly to all files in proportion with their original sample rate.*

Importing Audio from AAF Sequences with Unsupported Video Formats

Pro Tools lets you import audio from AAF sequences containing unsupported video formats, including high-definition Avid video files with frame rates over 30 frames per second.

The following rules apply when importing AAF sequences of this type:

- Supported audio in these sequences will play back, but unsupported video will not.
- Unsupported video appears in the Timeline as orange blocks.

Importing AAF/OMF Sequences Containing Media Mixdowns

Pro Tools with an Avid video peripheral lets you import AAF and OMF sequences exported from Avid editing applications by selecting **File > Import > Session Data** or by dragging them from the desktop or a DigiBase browser to Pro Tools. For more information, see “Importing Session Data” on page 356.

If the sequence contains a video mixdown, the video mixdown and its corresponding metadata are displayed in two separate video tracks on the Timeline.

If the sequence contains an audio mixdown, the audio mixdown and its corresponding metadata are displayed in two separate video tracks on the Timeline.

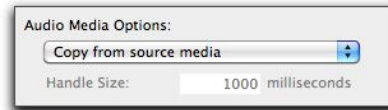
Import Options when Importing AAF or OMF Sequences

When importing AAF or OMF sequences, Pro Tools provides the following import options through the Import Session Data dialog:

- Audio Media options
- Video Media options
- Timecode Mapping options
- Track Offset options
- Sample Rate Conversion options
- AAF/OMF Source Track Translation settings
- Main Playlist options

Audio Media Options

When importing AAF or OMF tracks into Pro Tools, use the Audio Media Options pop-up to select whether to copy, consolidate, or link to the source audio media.



Audio Media Options

Link to Source Audio Media (Where Possible)

Select this option to translate the AAF or OMF file to a Pro Tools session that refers to as many of the original media files as possible. In this case, the Pro Tools session points to the BWF (WAV) or AIF files from the source project.

When importing audio embedded in an AAF sequence, Pro Tools copies the audio to a new drive or folder even if this setting is selected.

Copy from Source Media

Use this setting to copy referenced audio to a new drive or folder.

You can perform sample rate conversion on audio during translation.

OMFI Audio Media and Copy from Source Media Mode

When importing an AAF or OMF sequence with the Copy from Source Media option enabled, Pro Tools can copy OMFI format .WAV and .AIF audio files directly into the session. However, Pro Tools treats OMFI audio files as read-only.

Destructive edits or processes (such as the Pencil tool) cannot be applied to these files, unless they are first converted into standard audio files.

To convert OMFI audio files during import:

- Choose Force to Target Format mode, rather than Copy from Source Media mode, when setting import options. For more information, see “Force to Target Session Format” on page 370.

To convert an OMFI audio file that exists in the current session:

- 1 Select the audio to be converted.
- 2 Apply the Consolidate command to convert the selected audio (Edit > Consolidate Clip).
- 3 Edit and process your newly converted files as normal.

Consolidate from Source Media

Use this setting to copy the audio from the source project to the Pro Tools session, while removing all unused areas in the copies. For example, you might only be using ten seconds of a ten-minute audio file in your project. Consolidating this audio saves a great deal of disk space by preserving only the audio you use and a user-defined amount of *handle*, and discarding the rest.

You can sample-rate convert the audio during translation.

Force to Target Session Format

Use this setting to convert source media to the session audio file format if the source media file format differs from the session file format.

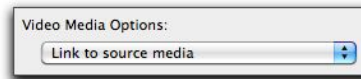
Handle Size (Milliseconds)

If you have selected Consolidate from Source Media, you can specify the number of milliseconds of each original audio file to retain both before and after the clip boundaries defined in the source project. This enables you to extend clip boundaries even after you’ve consolidated, by the amount you specify.

It is a good idea to have at least 1000 milliseconds of handle, so you can “trim out” edits that sound “clipped” or “up-cut.”

Video Media Options

When importing AAF or OMF tracks into Pro Tools, use the pop-up menu in the Video Media Options section to copy or link to the source video media.



Video Media Options

Link to Source Media

Select this option to avoid duplicating video files by referring to the original files.

Copy from Source Media

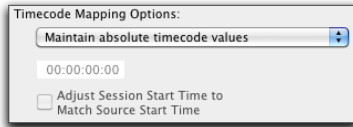
Select this setting to copy all video files related to the imported tracks from the source media to a new specified location.

Import as Offline Satellite Media (Pro Tools HD Only)

Select this option to import a video track with offline media. You will be able to see cuts and clip names, but the video media remains offline. You can view the video media on the connected Video Satellite system. This option is only available when New Satellite Track is selected for the video track.

Timecode Mapping Options

When importing AAF or OMF tracks into Pro Tools, you can specify where the imported tracks are placed in the current session. Times are indicated in timecode.



Timecode Mapping Options

Maintain Absolute Timecode Values

This option places tracks at the locations where they were located in the source session. For example, if the current session starts at 00:01:00:00, and the session from which you are importing starts at 10:00:00:00, the earliest imported tracks can appear in your session is 9 hours and 59 minutes after the start of the session.

Maintain Relative Timecode Values

This option places tracks at the same offset from session start as they had in the source session. For example, if the source session starts at 01:00:00:00 and contains a track that starts at 01:01:00:00, and the current session start is 02:00:00:00, the track will be placed at 02:01:00:00 in the current session.

Map Start Timecode to hh:mm:ss:ff

This option places tracks relative to their original session start time. For example, if the current session starts at 00:01:00:00, and the session from which you are importing starts at 10:00:00:00, you can reset the start timecode to 00:01:00:00, to avoid placing files 9 hours and 59 minutes from the start of your session.

Adjust Session Start Time to Match Source Start Time

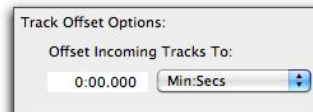
This option changes the start time of the current session to match the start time of the AAF or OMF sequence being imported. When this option is enabled, the Map Start Timecode to hh:mm:ss:ff option (and its timecode entry box) are disabled.

A *If the sequence being imported has a later start time than the current session, the Maintain Absolute Timecode Values option is disabled.*

A *In some cases, when clips in the current session are situated near the time boundaries of the session, enabling Adjust Session Start Time and choosing to Maintain Relative Timecode Values can put clips in danger of being moved out of bounds. In these cases, a warning is displayed and Pro Tools does not adjust the session start time.*

Track Offset Options

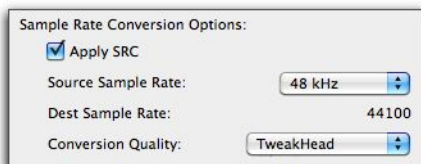
When importing AAF or OMF tracks into Pro Tools, specify a track offset in addition to any offset incurred with the Timecode Mapping options. Any imported audio is offset in the current session's timeline by the specified amount. Values can be entered in Bars|Beats, Min:Sec, Timecode, Feet+Frames, or Samples.



Track Offset Options

Sample Rate Conversion Options

When importing AAF or OMF tracks into Pro Tools, these settings let you convert the sample rate of the session's audio files. For example, you can convert from 48 kHz to 44.1 kHz, or from 44.1 kHz to 48 kHz. Avid HDX, HD Native, and Pro Tools|HD systems support sample rates higher than 48 kHz (88.2 kHz, 96 kHz, 176.4 kHz, and 192 kHz). These settings also enable you to convert to compensate for the 0.1% speed change (pull up or pull down) between 24 fps film and 29.97 fps NTSC video, or the 4% speed change (pull up or pull down) between 24 fps film and 25 fps PAL video.



Sample Rate Conversion Options

💡 See “*Speed Correction for Film, NTSC Video, and PAL Video*” on page 1164 for information about converting between different speeds and sample rates.

Source Sample Rate

This setting lets you specify the sample rate of the audio material you are working with in Pro Tools, independent of the project sample rate settings.

For example, you may receive a project originated on Media Composer at 44.1 kHz. If you want to work at 48 kHz in Pro Tools, you should set the Source Audio Sample Rate setting to 44,100 and the Destination Audio Sample Rate to 48,000.

These settings can also be used to correct for pull up or pull down problems. For example, you may receive an AAF or OMF transfer from a Film Composer that contains audio media at “film speed” when played back at 48 kHz. You may want to convert all the audio files and edits to play back at NTSC video speed and 48 kHz.

In this case, set the Source Audio Sample Rate setting to 47,952 and the Destination Audio Sample Rate to 48,000. These settings tell Pro Tools that you want to fit 47,952 of the original “film speed” samples into 48,000 of the new “video speed” samples. With these settings, you sample-rate-convert the material to NTSC video speed.

You can set the Source Audio Sample Rate either by selecting one of the predefined sample rates from the pop-up menu, or by typing a value into the text box.

Destination Sample Rate

This setting determines the target session's audio sample rate setting, as shown in the Session Setup window, and the sample rate of all audio files in the target session. Available settings include Pro Tools standard sample rates of 44.1 kHz or 48 kHz. Avid HDX, HD Native, and Pro Tools|HD systems support sample rates higher than 48 kHz (88.2 kHz, 96 kHz, 176.4 kHz, and 192 kHz).

If this setting differs from the Source Audio Sample Rate setting, audio is sample-rate converted digitally to the Destination Audio Sample Rate.

Conversion Quality Pop-Up Menu

This pop-up menu lets you select settings corresponding to Pro Tools sample rate conversion settings. The Tweak Head (Slowest) option provides the best results.

AAF/OMF Source Track Translation Settings

Pro Tools provides specific options for “translating” audio clips when importing AAF sequences or OMF files and sequences.



Translation settings

Import Rendered Audio Effects

Enabling the Import Rendered Audio Effects option imports clips as audio clips, retaining the rendered effects (such as EQ) that were applied to the clip. You may want to disable this if you plan to use Pro Tools audio effects and audio processing exclusively for your audio post production work. The resulting audio with this setting disabled is the unprocessed source material.

Import Clip Gain

The Import Clip Gain setting lets you import clip-based gain settings, or ignore clip-based gain entirely. Media Composer and other Avid products provide clip-based gain to adjust the volume of an individual audio clip.

Clip-based gain differs from standard Pro Tools volume adjustments for an entire track, or volume breakpoint automation. Enable this option to import clip-based gain data from the incoming sequence.

Import Volume Automation

The Import Volume Automation setting lets you import volume breakpoint automation, or ignore it entirely. Media Composer and other Avid products provide volume automation, for continuous volume change throughout a sequence.

Pan Odd Tracks Left/Even Tracks Right

The Pan Odd Tracks Left/Even Tracks Right setting enables you to set the basic track pan setting so that odd-numbered tracks translate with full-left panning, and even-numbered tracks translate with full-right panning. This is useful if you want to pan the currently unpanned audio full-left or full-right.



The Pan Odd Tracks Left/Even Tracks Right setting is not supported when importing multi-channel audio tracks from an AAF. When importing multi-channel tracks, the setting is greyed-out and any imported stereo channels are panned hard right and hard left.

Markers To Import

Avid Media Composer sequences can contain metadata points called Markers that serve a similar purpose to the Markers in Pro Tools, adding color-coded contextual information to the timeline. Even though markers are associated with specific tracks in Media Composer, you can import markers into Pro Tools without importing those tracks.

When exporting an AAF from Media Composer, Marker information is included and can be imported into Pro Tools, thus preserving this data.



Markers can only be imported from AAF sequences.

To import all Markers:

- Click the Markers to Import menu and select All.

To import no Markers:

- Click the Markers to Import menu and select None.

To import Markers based on marker color:

- 1 Click the Markers to Import menu.
- 2 Select the colors of markers you want to import. Check marks appear next to the selected colors.

Once imported, the new Markers can be edited as normal.



Unlike Pro Tools Markers, which only mark specific points in time in a session, Media Composer Markers point specifically to individual audio or video tracks. Information on which track each Marker was associated with can be found in the Comments section in the Memory Locations window in Pro Tools.



When Media Composer Markers are imported to Pro Tools as Markers, the associated comment text is added to the Marker name in Pro Tools (up to 31 characters). Comments over 31 characters can be viewed in full in the Memory Locations window in Pro Tools.

Track Data to Import Pop-Up Menu

The Track Data to Import pop-up menu lets you select which attributes of the selected tracks you want to import into the current session. The selected attributes are applied to all tracks that you choose to import into the current session. For more information about Track Data To Import options, see “Track Data to Import” on page 362.

Importing RTAS Plug-In Settings from AAF

Avid Media Composer 5 and higher lets you process audio tracks with RTAS plug-ins. Pro Tools lets you import RTAS plug-in data from audio tracks in Media Composer-generated AAF sequences. Plug-in type, order, and control settings are preserved.



Pro Tools cannot export RTAS plug-in data when outputting an AAF for use with Media Composer. Because Pro Tools mixes often contain complex bussing, routing, and plug-in automation, tracks should be printed or bounced to retain new processing changes before exporting to AAF.

When importing an AAF into Pro Tools, use the Track Data to Import menu to specify whether or not to import the plug-ins and plug-in settings.

To import plug-in settings when importing AAF tracks or sequences:

- 1 Open the Track Data to Import menu.
- 2 Do one of the following:
 - Choose All.
 - Choose Some, and ensure that Plug-in Assignments is selected.

To avoid importing plug-in settings when importing AAF tracks or sequences:

- 1 Open the Track Data to Import menu.
- 2 Choose Some, and ensure that Plug-in Assignments is deselected.

Main Playlist Options

When importing AAF or OMF tracks into Pro Tools, you can choose how the main playlist from each source track is imported to the destination track in the current session. See “Main Playlist Options” on page 364.

Media Composer Export Options for Audio and Video Mixdowns

You can request the following export options for the AAF you are receiving from an Avid application:

- To export both a video mixdown and its corresponding editing metadata, the Avid video editor should select Video Mixdown from the Export Method pop-up menu, then select Mixdown with Video Edits in the Export Settings dialog.
- To export both an audio mixdown and its corresponding editing metadata, the Avid video editor should select Add Audio Mixdown Track(s) in the Export Settings dialog.
- To export directly to DigiDelivery, the Avid video editor should choose DigiDelivery from the Export Method pop-up menu.

Audio File Format Compatibility Issues

AIFC Audio File Format

Avid Media Composer and other Avid editors support audio files in the AIFC format, a version of the Audio Interchange File Format (AIFF) that supports compressed media. Pro Tools can import and use this format, but not compress audio in this format.

Sound Designer II Audio File Format

Support for AAF Sequences Referencing SDII Audio Files

Pro Tools lets you import AAF sequences that reference Sound Designer II (SDII) audio files. However, any referenced Sound Designer II files are automatically converted to a supported audio file format (WAV or AIF).

Translation Notes File

If there are any errors, clip name truncations, or other notes (such as missing effect renderings), during import of an AAF or OMF file or sequence, a dialog appears asking if you want a detailed report of the changes. Click Yes and choose where you want to save the translation notes file.

The Translation Notes File can be opened by most word processing applications that can read plain text files.

Translation Notes Format

Translation Notes are presented in the following format:

*Track Name <Timecode Start–Timecode End>
“clip name (if available)”;*message

Translation Notes and Categories

The Translation Notes File is separated into different categories. The following are sample messages in each category, with explanations of what has happened and solutions if necessary.

Parsing Errors

Example

A1<01:00:00:00–01:00:04:20>error reading component “Assertion in OMF_Objects2x.cpp”, line 2871;substituting fill.

This error indicates a problem that may have originated in Pro Tools or the application that produced the AAF or OMF file. In the translated composition, there will be silence or video black at the given interval.

Missing Renderings

Example 1

A1<01:00:02:00–01:00:07:01> no rendering for effect:EFF_AUDIO_EQMB;using bypass clip.

This indicates the presence of an effect for which there is no rendering. The “bypass clip” is the (unprocessed) source material for the effect.

Example 2

V1<01:00:48:25–01:00:49:26>no rendering for effect: omfi:effect: VideoRepeat;substituting silence/video black.

For some effects, the length of the output is different than the length of the input. In this case, substituting a bypass when a rendering is missing doesn't make sense, because it won't sync properly. Pro Tools substitutes silence or video black.

Ignored Effects

A1<01:00:02:00–01:00:07:01>ignoring rendering for effect: EFF_AUDIO_EQMB;using bypass clip.

This indicates that the user has selected “Ignore Rendered Audio Effects” in Pro Tools. This note is a convenience so that if something is odd in the translated sequence, the user can determine if an effect that was ignored is actually required.

Incomplete Rendering

A1<00:00:28:29-00:00:31:17>incomplete rendering for effect Audio MultiBand EQ;using bypass clip.

This indicates that an effect was not rendered completely at a fade boundary in an Avid system. On import, Pro Tools bypassed the incomplete rendering and imported the audio without the effect. If you need the effect, re-render the effect and fade on the Avid system, and export again. Miscellaneous Errors (Misc Errors)

Example

A1<01:00:00:00–01:00:16:06> “Jag film to Whirl.01.Sub.06.new.01”; insufficient source material for clip;shortening clip by 1 sample.

This Translation Note is primarily informational, informing you that Pro Tools was not able to translate the AAF or OMF sequence exactly, and has had to make an adjustment so Pro Tools can understand it.

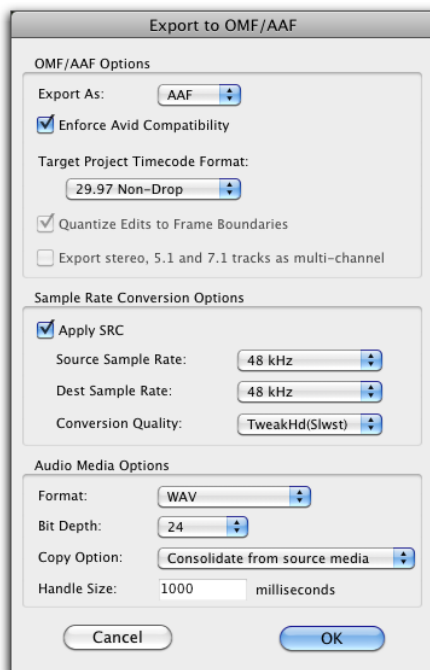
This error occurs because applications don't always calculate the number of samples in a frame in the same way. In some cases, there may be one too few samples of media to support a given clip from the Pro Tools standpoint. In this situation, there can potentially be an audio "pop."

Exporting Pro Tools Tracks as AAF or OMF Sequences

Pro Tools lets you export individual tracks in AAF or OMF format. Use the Export Selected Tracks as AAF/OMF command.


AAF and OMF sequences exported from Pro Tools do not support video files. They also do not retain information about plug-in assignments, parameters, markers, routing, or grouping. It is recommended that you render any effects prior to export.

A *Pro Tools can export AAF or OMF sequences linked to RF64 audio files, which are special WAV files that can be larger than 2 GB (normal WAVs must be under 2 GB). However, Avid video editing applications cannot open WAV files larger than 2 GB. Keep file size in mind when exporting AAF/OMF for Avid video users.*



Export to OMF/AAF dialog

To export selected audio tracks as an AAF or OMF sequence:

- 1 In Pro Tools, select the tracks you want to export. Choose either mixed or unmixed files.
 -  Shift-click to select multiple tracks; or
 - Option-click (Mac) or Alt-click (Windows) to select all tracks.*
- 2 Choose File > Export > Selected Tracks as OMF/AAF.
- 3 From the Export As pop-up menu, select AAF or OMF.

- 4 If desired, select Enforce Avid Compatibility.

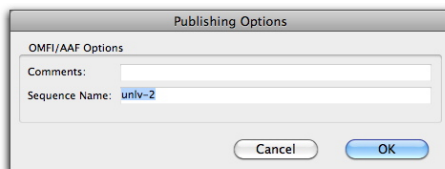
▲ *Enforce Avid Compatibility limits the sample rate options to 44.1 or 48 kHz, and enables exporting of clip gain data. Dither without noise shaping will be applied to files being exported from 24-bit to 16-bit.*

- 5 Be sure to select the correct Target Project Timecode Format option for the project as set for the project in your target application (such as Avid Media Composer).
- 6 Set the Sample Rate Conversion Options as necessary.
- 7 Set the Audio Media Options settings by doing the following:
- Ensure that the Format and Bit Depth match the settings in your target project (as set for the project in your video software application).
 - Select a Copy Option (Link to Source Media, Copy from Source Media, or Consolidate from Source Media).
- 8 If you're exporting a sequence that contains stereo, 5.1 or 7.1 tracks and want those tracks to retain proper channel layouts upon export, enable the Export Stereo, 5.1 and 7.1 Tracks as Multi-Channel option.
- 9 Select other export options.

📖 *For more information, see “Export Options when Exporting to AAF or OMF Sequences” on page 382.*

- 10 Click OK.

- 11 In the Publishing Options dialog, type the Pro Tools Comment and Sequence Name.




Publishing Options dialog (Export Selected Tracks as OMF/AAF) shown

- 12 Click OK.
- 13 In the Save dialog, navigate to a folder where you can easily locate the AAF or OMF sequence when it is time to distribute it to another editor or import it into Media Composer.
- 14 Click Save.
- 15 In the “Please Choose a Folder for Converted Audio Files” dialog, navigate to a folder where the media files can be easily located (such as the same folder where AAF or OMF sequence resides).
- ▲ *Some video editors (such as Avid Media Composer), require all media files to be in specific folders to allow proper relinking.*
- 16 Click Choose (Mac) or Use Current Folder (Windows).

Pro Tools exports the composition and related media to the appropriate folders.


Exporting Multichannel Audio Tracks

When exporting AAF, stereo, 5.1, and 7.1 tracks can be exported as multichannel tracks, or as split-mono tracks. When exporting to OMF, multichannel tracks are always exported as multiple mono files.


 *Video tracks cannot be exported to AAF or OMF from Pro Tools.*

Exporting Clip Gain

When exporting to AAF with the Enforce Avid Compatibility option on, Pro Tools generates Media Composer-style clip gain data, based on the clip gain data on each track.

 *To export clip-based gain data, the Enforce Avid Compatibility option must be enabled.*

The clip gain of Pro Tools clips with static volume between -inf dB and +12 dB will translate directly to clip-based gain upon export. Dynamic clip gain and values above 12 dB will be rendered for each clip in the resulting media, to optimize compatibility with Avid video editing applications.


 *Clip-based gain is not exported when exporting to OMF format.*

Exporting Volume Automation to OMF

Pro Tools does export volume automation to OMF, but only if the Enforce Avid Compatibility option is disabled.

Exporting Fades

While Pro Tools supports generating audio fades in real time, all fades in the session are rendered to disk upon AAF or OMF export, to optimize compatibility with Avid video editing applications.

 *Fades are rendered and exported even when creating an AAF/OMF sequence with the Link to Source Media option enabled.*

Clip Groups

Pro Tools cannot export tracks with clip groups when exporting to AAF or OMF. Before exporting tracks from a sequence containing clip groups to AAF or OMF, ensure that any tracks containing clip groups are not selected.


Exporting Pro Tools Tracks as MXF Audio Files


You can export MXF audio files using the following commands:

- Export Selected Tracks as OMF/AAF
- Bounce to Disk
- Export Selected Clips as Files

Exporting AAF Sequences Containing MXF Audio


Use Export Selected Tracks as OMF/AAF to export individual tracks or an entire Pro Tools session as an AAF sequence referring to MXF audio files.

 *Tracks are exported in their entirety and time selections are ignored.*


 *Volume and pan automation is not exported if Quantize Edits to Frame Boundaries or Avid Compatibility Mode are enabled.*

To export selected audio tracks from Pro Tools as an AAF sequence referring to MXF audio files:

- 1 In Pro Tools, select the tracks you want to export.
- 2 Choose File > Export > Selected Tracks as OMF/AAF.
- 3 Under OMF/AAF Options, select AAF from the Export As pop-up menu.

 *An OMF sequence cannot reference MXF media files. When using the Export Selected Tracks as OMF/AAF dialog, choose AAF in the Export As pop-up menu to enable MXF in the Audio Format menu.*

- 4 Select Enforce Avid Compatibility.

 *Enforce Avid Compatibility creates frame-accurate edits, wraps the files as OMFI (unless you choose MXF), and limits the sample rate options to 44.1 or 48 kHz. Dither without noise shaping will be applied to files being exported from 24-bit to 16-bit.*

- 5 Ensure the Target Project Timecode Format is correct for the Avid application project to which you are exporting the AAF sequence.
- 6 Under the Audio Media Options section, select MXF from the Audio Format pop-up menu.
- 7 Verify the Audio Bit-Depth setting is acceptable for the recipient of this export.
- 8 If you're exporting a sequence that contains stereo, 5.1 or 7.1 l tracks and want to export those tracks as multi-channel audio files, enable the Export Stereo, 5.1 and 7.1 Tracks as Multi-Channel option.
- 9 Click OK.
- 10 In the Publishing Options dialog, type the Pro Tools Comment and Sequence Name.


Pro Tools will create a sequence with the name you supply. The comment appears in the Avid application bin in the Pro Tools Comment column.

- 11 Click OK.

- 12 In the Name the AAF File to Export dialog, navigate to a folder where you can easily locate the AAF sequence when it is time to distribute it to another editor or import it into Media Composer.

- 13 Click Save.


- 14 In the Please Choose a Folder for Converted Audio Files dialog, navigate to a folder where the media files can be easily located (such as the same folder where AAF or OMF sequence resides).

 *Some video editors (such as Avid Media Composer), require all media files to be in specific folders to allow proper relinking.*

- 15 Click Choose (Mac) or Use Current Folder (Windows).

Pro Tools exports the AAF sequence to the selected folder, and exports the related media to the OMFI MediaFiles folder (OMF files) or the Avid MediaFiles folder (MXF files).

- 16 If you are ready to import the files into the Avid application, exit Pro Tools.

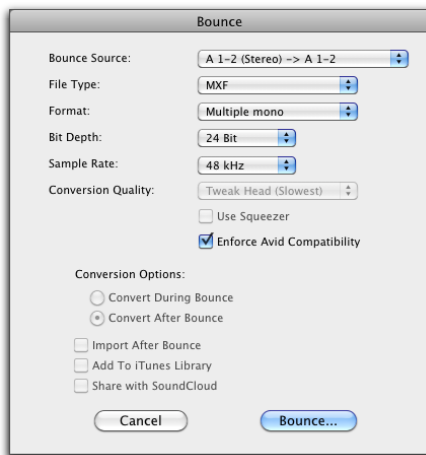
 *For more information on working in Avid applications, see the appropriate Avid application guide.*

Exporting MXF Audio Files Using Bounce to Disk

You can use the Bounce to Disk command to create pre-mixed MXF audio files of the current Pro Tools session. This does not export all of the individual files on the Timeline, but it does guarantee that the mix you hear in another application will be identical to the mix you hear in Pro Tools, including all panning, effects and automation.

To export to MXF using Bounce to Disk:

- 1 After you have finished recording and mixing a session in Pro Tools, highlight the length of the session in the timeline ruler (or on a track), plus an additional amount of time to avoid cutting off any reverb tails that might continue past the end of the clip.
- 2 Choose File > Bounce To > Disk.
- 3 In the Bounce dialog, select the Bounce Source.

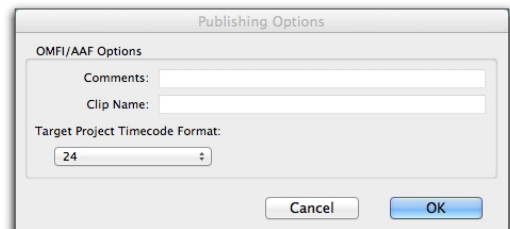


Pro Tools Bounce to Disk dialog

- 4 Select Enforce Avid Compatibility.

💡 *Enforce Avid Compatibility creates frame-accurate edits, wraps the files as OMFI (unless you choose MXF), and limits the sample rate options to 44.1 or 48 kHz. Dither without noise shaping will be applied to files being exported from 24-bit to 16-bit.*

- 5 Select MXF for the File Type.
- 6 Select a Sample Rate and Bit Depth.
- 7 Click Bounce.
- 8 In the Publishing Options dialog, do the following:
 - Type the Pro Tools Comment and Clip Name.
 - Choose a Target Project Timecode Format that matches the Avid application project to which you are exporting the MXF audio.



Publishing Options dialog

All audible audio in the selection will be exported to two multi-mono audio files.

- 9 In the Save Bounce As dialog, choose the drive where you want to save the files.
- 10 Click Save.

Pro Tools begins bouncing to disk. Pro Tools bounces are done in real time, so you hear audio playback of your mix during the bounce process (though you cannot adjust it).

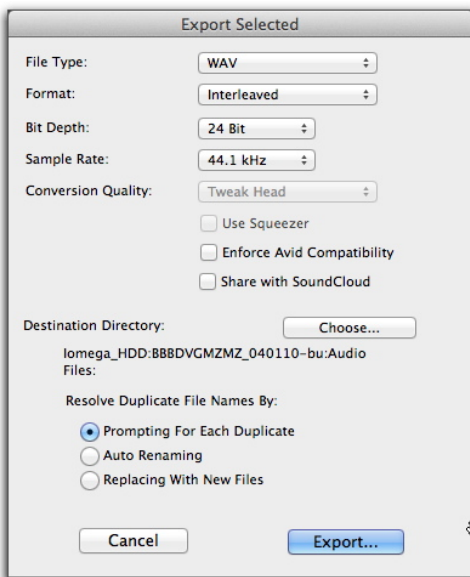
Exporting a Clip as a New MXF File

You can export clips as MXF audio files with the Export Selected As Files command. Use this command if you intend to use a clip in other sessions or other audio applications without using its parent source file.

This command also provides a way to convert clips to a different sample rate or bit depth.


To export clips as new MXF files:

- 1 In the Clips List, select the clips you want to export.
- 2 From the Audio Clips List pop-up menu, choose Export Selected As Files.



Export Selected dialog

- 3 In the Export Selected dialog, select the Enforce Avid Compatibility option.

 *Enforce Avid Compatibility creates frame-accurate edits, wraps the files as OMF1 (unless you choose MXF), and limits the sample rate options to 44.1 or 48 kHz. Dither without noise shaping will be applied to files being exported from 24-bit to 16-bit.*

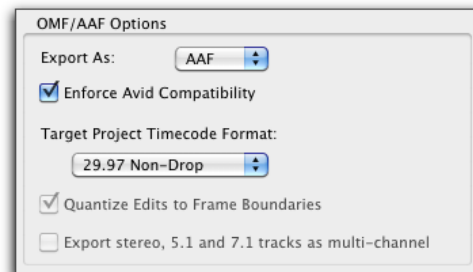
- 4 Select MXF from the Audio Format pop-up menu.
- 5 Set the bit resolution and sample rate. In addition, specify the Conversion Quality and Destination Directory.
- 6 Click OK.

Export Options when Exporting to AAF or OMF Sequences

Pro Tools provides several translation settings when exporting tracks to OMF/AAF, including OMF/AAF Options, Sample Rate Conversion Options, and Audio Media Options.

OMF/AAF Options

When exporting tracks to AAF or OMF, Pro Tools provides the following OMF/AAF Options:



Export to OMF/AAF Options

Enforce Avid Compatibility

If the Enforce Avid Compatibility option is enabled, all AAF and OMF files and sequences will meet the specific requirements of Avid Video workstations. Sample rates are limited to 44.1 kHz or 48 kHz. Exported clips will be padded to the nearest frame boundaries (Quantize Edits to Frame Boundaries). This padding ensures that the placement of a file in the Timeline will be the same on sample-accurate as well as frame-accurate systems.

⚠ *When exporting a sequence with multi-channel audio tracks, the Enforce Avid Compatibility option must be enabled.*

Target Project Timecode Format

Select the timecode format for the project into which this file or sequence will be imported. This may be different from the timecode format of the current session. This parameter allows clips to be placed correctly in sessions with different timecode formats, and also calculates how many samples must be added to pad clips to frame boundaries.

Quantize Edits to Frame Boundaries

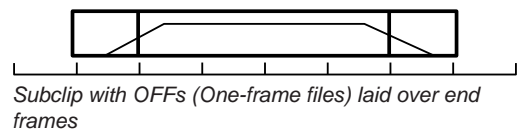
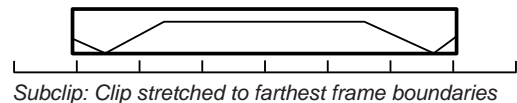
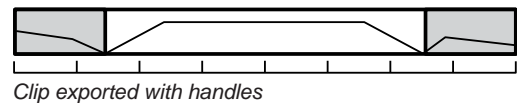
Pro Tools allows sample-accurate placement of clips. In Pro Tools, you can place a clip of any length at any position, without any requirement for aligning clips with frame boundaries.

However, most video editing programs, such as Media Composer, only support frame-accurate editing. In these programs, you can only edit sounds on whole frame boundaries, limiting your precision.

Selecting Enforce Avid Compatibility will automatically select Quantize Edits to Frame Boundaries.

The Quantize Edits to Frame Boundaries option allows Pro Tools to export your sample-accurate Pro Tools edits into an AAF or OMF file so they appear as frame-accurate.

⚠ *The Quantize Edits to Frame Boundaries setting must be selected when you are translating your Pro Tools session for use in frame-accurate editing workstations. Therefore, it is automatically selected whenever you export tracks with Enforce Avid Compatibility selected.*



When you quantize edits to frame boundaries, you must enter a handle size (length) under Audio Media Options. See “Consolidate Handle Size (Milliseconds)” on page 386.

A master clip consisting of the clip plus the handle size (length) on both front and back will be exported. The exported sequence creates a subclip which is equivalent to the original clip, but extended to the farthest frame boundaries. For exam-

ple, if the clip starts at 1:15 and 500 samples, the subclip would start at 1:15; and if the clip ends at 4:00 and 500 samples, the subclip would end at 4:01.

Because quantizing edits to frame boundaries extends the clips, extra audio may be heard. To prevent this extra audio from playing, special one-frame sound files are rendered to duplicate the original boundaries of the clip. In the exported sequence, these one-frame files are placed over the start and end frames of the extended clip so you cannot hear the extension.

One-frame files (OFFs) are imported into Avid workstations as part of the AAF or OMF sequence like any other sound file. In the Avid Timeline, they appear as one-frame edits on either side of a subclip.

If you decide you need to extend the subclip at any point, discard the OFF and trim the subclip as needed.

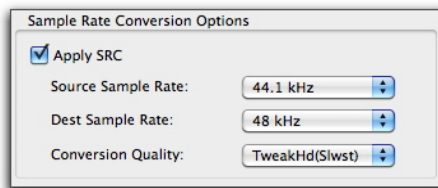
💡 *This solution is only available when you export a sequence, not when you export individual files.*

⚠ *If **Quantize Edits to Frame Boundaries** is selected, Pro Tools volume automation will not be exported.*

Export Stereo, 5.1, and 7.1 Tracks as Multi-Channel

Select this option to make Pro Tools export audio from multi-channel tracks as multi-channel audio files, rather than sets of multiple mono files.

Sample Rate Conversion Options



Sample Rate Conversion Options

These settings allow you to convert the sample rate of your Pro Tools session during export to AAF or OMF by sample-rate converting each audio file, and adjusting the edits in the resulting AAF or OMF file to compensate for this change.

💡 *See “Speed Correction for Film, NTSC Video, and PAL Video” on page 1164, for information about converting between different speeds and sample rates.*

You might want to change the sample rate of a session if you are exporting to a system or are at a stage in the process that requires a different sample rate.

⚠ *Check the Audio and Video pull options before applying a sample rate conversion to the entire session.*

For example, your session contains audio media at 29.97 fps (NTSC video) at 48 kHz, while the film composer to whom you are exporting your session requires audio media at 24 fps (film speed) at 48 kHz. To convert all the audio files and edits to play back at 24 fps (film speed) at 48 kHz, you would set the Source Audio Sample Rate setting to 48,048 (a pull up rate of 0.1%) and the Destination Audio Sample Rate to 48,000. These settings tell Pro Tools that you want to fit 48,048 of the original video speed samples into 48,000 of the new film speed samples. With these settings, you sample-rate convert the video material to film speed.

Source Audio Sample Rate

This setting allows you to specify the sample rate of the material you are working with in Pro Tools, independent of the session's sample rate settings.

Destination Audio Sample Rate

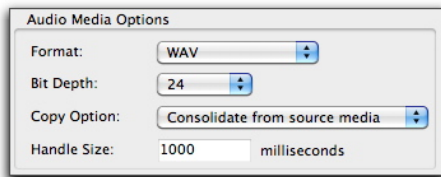
This setting allows you to specify the sample rate for audio files after the AAF or OMF translation.

If this setting differs from the Source Audio Sample Rate setting, audio is sample-rate converted digitally to the Destination Audio Sample Rate.

Sample Rate Conversion Quality

These settings correspond to Pro Tools sample rate conversion settings. It is not recommended that you use the Low (Fastest) setting. The Tweak Head (Slowest) setting provides the highest quality sample rate conversion.

Audio Media Options



Audio Media Options

When exporting tracks to AAF or OMF, Pro Tools provides the following Audio Media Options:

Audio Format

Choose whether you want the resulting AAF or OMF file to refer to BWF (.WAV), AIFF, SD II (Mac and OMF only), MXF (AAF only), or embedded files. The audio files will be converted accordingly.

⚠ *If you create AIFF or BWF (.WAV) audio, the audio files have extra OMF data attached to them. Though most applications will not have problems reading these audio files, they may not be compatible with all applications.*

⚠ *MXF is only available if you have selected the Enforce Avid Compatibility option.*

Bit-Depth

Select 16-bit or 24-bit as the target bit-depth for the exported media. Pro Tools automatically applies dither, without noise shaping, when reducing bit-depth from 24-bit to 16-bit.


Source Media

When exporting tracks from Pro Tools to AAF or OMF, there are three ways that Pro Tools can handle source audio media (as set in the Export to OMF/AAF dialog's Audio Media Options pop-up menu).

Link To Source Media Creates an AAF or OMF file that refers to as many of the original media files as possible. In this case, the AAF or OMF file points to the BWF (.WAV), MXF, AIFC, or Sound Designer II files from the source project.

Copy From Source Media Copies audio to another drive or folder. You can sample-rate convert the audio during this translation.

Consolidate From Source Media Copies only the part of the files that are actually used by the session. For example, you may only be using a ten-second clip of a ten-minute audio file in your session. Consolidating this audio saves a great deal of disk space by copying only the audio you use, and discarding the rest.

 *Consolidate Source Audio Media is the only usable option for a Pro Tools to AAF or OMF translation when Quantize Edits to Frame Boundaries is selected. See “Quantize Edits to Frame Boundaries” on page 383.*

Consolidate Handle Size (Milliseconds) Specifies the number of milliseconds of the original audio file to retain at the beginning and end of each audio clip that is created. This lets you extend clip boundaries even after you have consolidated, by the amount you specify. It is a good idea to have at least 1000 milliseconds (one second) of handle, so you can “trim out” edits that sound “clipped” or “up-cut.” Consolidate Handle Size is only available when Consolidate From Source Media is selected.

Export Stereo, 5.1, and 7.1 Tracks as Multi-Channel

When exporting a sequence with multi-channel (stereo, 5.1 or 7.1) tracks, enable this option to retain proper channel layouts upon export.

Publishing Options

When exporting AAF or OMF files from Pro Tools, specific publishing options that provide information about the sequence or media are available through the Publishing Options dialog. These options will vary depending on which method of exporting files you use.

OMF Options

Pro Tools Comment Identifies the source of the file, and defaults to the name of the current session. The Pro Tools Comment field does not appear if you are using the Export Selected as Tracks command, since audio on one track may have many different sources.

Sequence Name This is the name that will be displayed when the file is imported into another AAF- or OMF-compatible program. The sequence name is not the file name that will appear in the finder. This field defaults to the Pro Tools clip name. When exporting more than one clip, all clip names are automatically set to the clip name.

Target Project Timecode Format This is the timecode format for the project into which this file or sequence will be imported. This may be different from the timecode format of the current session. This parameter allows clips to be placed correctly in sessions with different timecode formats, and also calculates how many samples must be added to pad clips to frame boundaries.

Time Stamping

When you export to AAF or OMF, all exported media is *time stamped*. A time stamp is a specific timecode location stored within an individual media file.

The time stamp can indicate:

- Timecode location on the source tape
- Where the file was originally recorded in the Pro Tools Timeline
- Where a clip was placed in an Avid or Pro Tools Timeline
- User-entered timecodes

Time stamps can be stored in three different places within a media file:

- In a clip definition
- In the file format metadata (for example, .WAV file wrappers)
- In the AAF or OMF wrapper

Exporting a Clip

If you are exporting a clip, the time stamp will be the start point of the clip, relative to the point where the file originally started to record. For example, if you record a file from 1:00 to 1:30, then trim it to start at 1:15, the time stamp for the exported clip would be 1:15. This is true even if the clip is slipped elsewhere in the Timeline.

Exporting a Clip as Part of a Sequence

When you export a clip as part of a sequence, the clip's original time stamp reflects the clip's position in the Timeline of the sequence.

Exporting a File

Recorded in Pro Tools If the file was recorded in Pro Tools, the time stamp is the location in the Timeline at which the recording began. For instance, if you record the file from 1:00 to 2:00, the time stamp would be 1:00.

AudioSuite If the file was created by AudioSuite, the time stamp depends on the rendering mode used when the file was rendered. If Create Individual Files mode is selected, the time stamp of the new file matches the original time stamp of the source file. If Create Continuous File is selected, the time stamp of the new file matches the position of source file on the timeline.


Existing Time Stamp If a file is imported with an existing time stamp, it will remain the time stamp for the exported file as well. If the original file contained a time stamp in the format wrapper, it will be copied to the OMF wrapper when exported.

Exporting a File With No Time Stamp

If you import a file that does not contain a time stamp (such as a sound effect from a CD), the time stamp will be 0 when it is exported.

Importing Files from an Avid AAF or OMF Sequence

If you import a file from an Avid AAF or OMF sequence, the media file's source tape time stamp becomes the original time stamp of the new Pro Tools file. The User Timestamp maintains the original time stamp.

 *DigiBase provides columns for specific Avid OMF metadata, including Clip Name, Tape, FPS, Original Timestamp, and User Timestamp.*

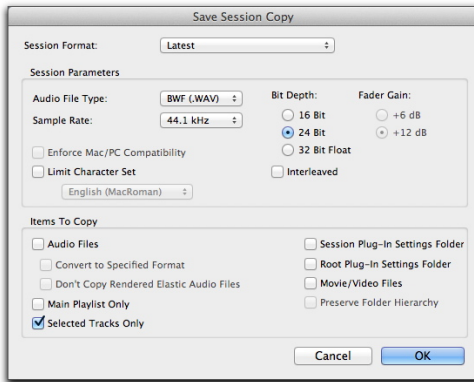
Export Selected Tracks as New Session

Pro Tools lets you export any selected tracks in a session as a new session. This command replaces the Export Session Data command in lower versions of Pro Tools. This feature is especially useful in collaborative situations.

For example, you might be working on a large post-production session and you want your collaborator to work on only some dialog in the session while you continue working on other parts of the session. You can now select the dialog tracks and export them as a new session. Your collaborator can then open the new session and edit the dialog. When your collaborator is done, you can import the session data from the dialog session to update the dialog tracks in your big session.

To export selected tracks as a new session:


- 1 Select the tracks you want to export as a new session.
- 2 Choose File > Export > Selected Tracks As New Session. The Save Session Copy dialog opens. (You can also open the Save Session Copy dialog by choosing File > Save Copy In.)



Save Session Copy dialog

- 3 In the Save Session Copy dialog, verify that the Selected Tracks Only option is enabled.
- 4 Configure the Session Format and Session Parameters settings and options.
- 5 Configure the Items to Copy settings and options.
- 6 You can also enable the Main Playlist Only option if you don't want to include any of the alternate playlists associated with any of the selected tracks in the new session.
- 7 Click OK. The Save dialog opens.
- 8 In the Save dialog, name the session.
- 9 Navigate to where you want to save the session.
- 10 Click Save.

A copy of the session that contains only the selected tracks from the source session is saved to the specified location.

 For information on the Save Session Copy dialog settings and options, see “Save Copy In Options” on page 177.

Exporting Session Information as Text

You can use the Export Session Info as Text command to create a text file that contains extensive information about your session.

This text file can contain a list of audio files, audio clips, audio track EDL (Edit Decision List) information, extended timestamp information, and information about crossfades.

Track EDLs are exported as tab-delimited text, with tabs between each column heading, and tabs between each event parameter. You can use this data in a program for reading EDLs, or you can format the EDL data into tables using a word processor or spreadsheet application.

To export session information as text:

- 1 Choose File > Export > Session Info as Text.
- 2 Select whether to include the File List, Clip List, and track EDLs.
- 3 If you choose to include track EDLs, select whether to show subframes, and whether to include user timestamps. Also select an option for crossfade handling.
- 4 If you choose to include track EDLs, select the Time Format for the exported session text from the pop-up menu.
- 5 Select the File Format for exported text using the pop-up menu.

- 6 When you have set your options, click OK.
- 7 Select a location and type a filename for the exported text file. In Windows, Pro Tools adds the correct 3-letter filename extension, while on the Mac, the file extension “.txt” is added.

Exported Session Text Files

Session Information

The session text file starts with basic information about the session. This information includes the session name, sample rate, bit depth, timecode format, and number of audio tracks, audio clips, and audio files, as shown in the following example.

Session Information example

SESSION NAME:	Ripleys II-092700
SAMPLE RATE:	48000.000000
BIT DEPTH:	24-bit
TIMECODE FORMAT:	30 Frame
# OF AUDIO TRACKS:	19
# OF AUDIO CLIPS:	203
# OF AUDIO FILES:	54

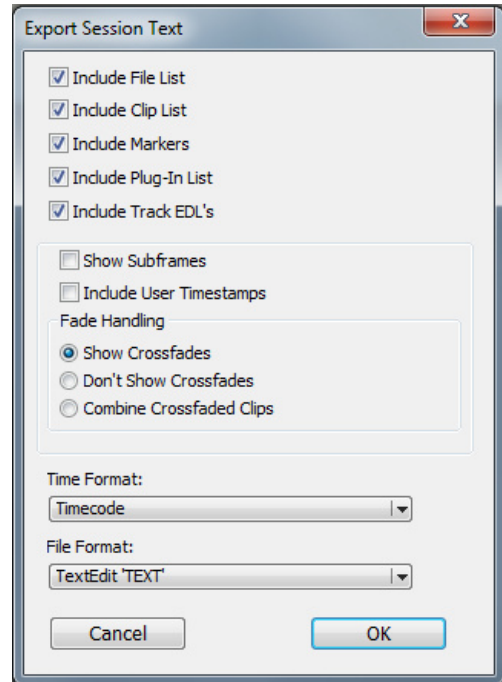
File List and Clip List

Next, if you choose to include them, are the lists of audio files and clips.

Track EDLs

The final item, if exported, is the list of track EDLs. A track EDL lists the track name, and all edits, including the event number, the clip name, clip start and end time, and clip duration. The clip time-stamp is also exported, if you select this option. Subframes are shown in each time field if you select this option.

Export Session Information as Text Options



Export Session Info as Text dialog

Include File List

Select this option to export a list of the session’s audio files. The File List provides a list of all the audio files in the session, and their hard drive locations.

Include Clip List

Select this option to export a list of the session’s audio clips. The Clip List provides a list of all of the audio clips in the session, as well as the source audio file for each clip.

Include Markers

Select this option to export a list of all markers included in the session.

Include Plug-In List

Select this option to export a list of the plug-ins used in the session.

Include Track EDLs (Playlists)

You can export track EDLs (playlists). Track EDLs can be used to spot-check clip placement and edits, or in a conforming program for post applications. In extreme circumstances the EDL can be used to recreate the entire session.

 *MIDI track EDLs are not exported.*

When exporting track EDLs, the following options are available:

Show Subframes This option allows you to export subframe time information with track EDLs, if used in your session.

Include User Timestamps You can include user timestamps with track EDLs. User timestamps indicate a user-defined session location for the clip, or the original location of the clip when recorded.

Fade Handling

For track EDLs, you can choose whether to show crossfades, not to show them, or to combine crossfaded clips. When clips are combined, their durations and locations are listed up to the center of the crossfade (for the leading clip) and from the center of the crossfade (for the following clip).

Time Format

You can select the appropriate time format that exported EDL information is based on. For example, for post work, you might select SMPTE time, but for music creation locked to a grid, you might select Bars:Beats.

File Format

On Mac, you can export to TextEdit, UTF-8, MS Excel, MS Word, Write Now, Word Perfect, and AppleWorks text formats. On Windows, you can export to either TextEdit or UTF-8.

Importing and Exporting Clip Group Files

Pro Tools can export and import the clip group file format (.rgrp). This lets you do the following:

- Separate clip group metadata from audio files to avoid unnecessary file copy operations when exporting audio clip groups composed from multiple source files.
- Export MIDI data as part of a clip group.
- Create multitrack loops.

Clip group files store the following metadata:

- References to all audio files within the clip group
- Clip names and relative location in tracks
- Embedded fades and crossfades
- Clip group names and format (single or multitrack)
- All MIDI data present in the clip group (such as notes, controllers, and Sysex)
- Track names
- Elastic Audio Warp markers and TCE factor
- Clip timebase (samples or ticks)
- Sync points
- Loops
- Tempo map

Clip group files do not store the following:

- Audio
- Automation
- Plug-Ins
- Track routing
- Meter map
- Clip List information

Pro Tools provides several ways to import clip groups into an open session:

- “Importing Clip Groups with Pro Tools Menu Commands” on page 391
- “Importing Clip Groups with Drag and Drop” on page 392

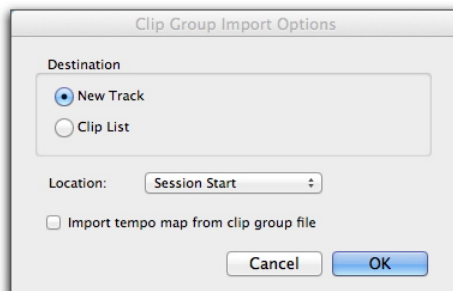
Importing Clip Groups with Pro Tools Menu Commands

To import a clip group with Pro Tools menu commands:

- 1 Choose File > Import > clip groups and select the clip group you want to import.
- 2 In the Clip Group Import Options dialog, choose where the clip group will go:

New Track Creates a new track where the clip group will be imported.

Clip List Imports the clip group into the Clip List, where it will be where it will be available to place into tracks.



Clip Group Import Options dialog

- 3 If you chose to create a new track, choose a location for the imported group in the track:

Session Start Places the group at the start of the session.

Song Start Aligns the beginning of the group to the Song Start point.

Selection Aligns the beginning of the group to the edit cursor or to the beginning of a selection in the Timeline.

Spot Displays the Spot dialog, which lets you spot the group to a precise location based on any of the Time Scales.

- 4 Select any of the following import options:

Import Tempo Map from Clip Group File When selected, replaces the session tempo map with the tempo map of the clip group. This option is only available when importing the clip group to the Session Start.

- 5 Click OK.

Importing Clip Groups with Drag and Drop

You can drag and drop clip groups from a DigiBase browser or from Windows Explorer or the Mac Finder to the Timeline, a track, the Track List, or the Clip List.

To import clip groups into the Clip List:

- 1 Select one or more clip groups in a DigiBase browser, Windows Explorer or Mac Finder.
- 2 Drag the files onto the Clip List of the current session.

To import clip groups into an existing track:

- 1 Select one or more clip groups in a DigiBase browser or from Windows Explorer or Mac Finder.
- 2 Drag the files onto an existing track in the Edit window of the current session.

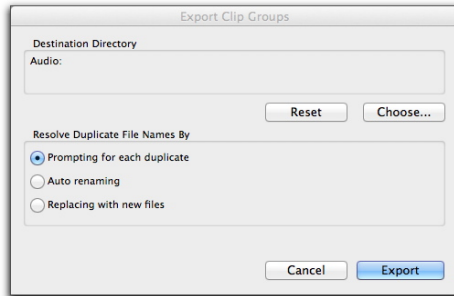
To import clip groups into new tracks:

- 1 Select one or more clip groups in a DigiBase browser, Windows Explorer or Mac Finder.
- 2 Do one of the following:
 - From the DigiBase browser, Shift-drag the files anywhere in the Edit window of the current session.
 - Drag the files onto any empty space in the Edit window of the current session.
 - Drag the files to the Track List.

Exporting Clip Groups

To export a clip group:

- 1 Select one or more clip groups in the Clip List.
- 2 From the Clip List menu, choose Export Clip Groups. The Export Clip Groups dialog opens.



Export Clip Groups dialog

- 3 The Destination Directory defaults to the auto-created Clip Groups folder in the session folder. You can change the Destination Directory by clicking the Choose button, navigating to a new location, and clicking Choose. Click Reset to reset the Destination Directory to the default location.
- 4 Enable one of the following options for resolving duplicate clip group file names:
 - Prompting for Each Duplicate (default)
 - Auto Renaming
 - Replacing with New Files
- 5 Click OK.

Exporting Clip Groups to Another Hard Drive

Generally, if you are exporting clip groups to another hard drive, you should copy any referenced audio files. This way you can move clip groups not only from one session to another, but from one system to another.

To export a clip group to a different hard drive and include its audio files:

- 1 Export one or more clip groups to the new drive.
- 2 Create a new session on the new drive.
- 3 Choose Setup > Preferences.
- 4 In the Preferences dialog, click the Processing tab and select Automatically Copy Files on Import.
- 5 Click OK to close the Preferences dialog.
- 6 Import all previously exported clip groups by dragging and dropping them into the session.

The audio files folder of the new session now contains all files referenced by the clip groups.

Send via DigiDelivery

Aspera DigiDelivery® is a system for efficient and reliable transfer of digital media files over the Internet. Send via DigiDelivery lets you send a Pro Tools session and all of its related files using DigiDelivery from within Pro Tools.

Like the Save Copy In command, DigiDelivery copies all files of the same type, regardless of their location, into a single destination folder.

Anyone can send and receive files from a DigiDelivery system, even if they do not own a DigiDelivery network appliance, as follows:

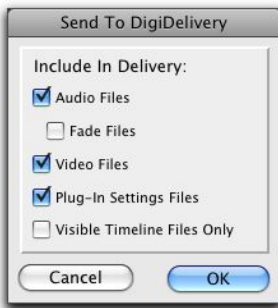
- ◆ To send a delivery, senders must have an Internet connection, an account on a DigiDelivery network appliance, and the DigiDelivery client application.
- ◆ To receive a delivery, recipients only need an Internet connection and the DigiDelivery client application. An account on the network appliance is not needed.



For more information about DigiDelivery, visit the Aspera website (<http://www.asperasoft.com>).

To send a session from Pro Tools using DigiDelivery:

- 1 Choose File > Send via DigiDelivery.
- 2 Do one of the following:
 - If the DigiDelivery client is not installed on your system, Pro Tools will launch your Web browser, and connect to the DigiDelivery site where you can download the current DigiDelivery client.
 - If the DigiDelivery client is installed on your system, the Send to DigiDelivery dialog will open.
- 3 In the Send to DigiDelivery dialog, select which files to include.



Include in Delivery dialog

You have the option to include:

- Audio files
 - Fade files (Pro Tools 9 and lower only)
 - Video files
 - Plug-In settings files
 - Visible Timeline files only (files that are referenced in the current session Timeline on tracks that are shown)
- 4 Click OK. The DigiDelivery client will launch, and the DigiDelivery Send Wizard (Page 1) will open. On this page you can name the delivery and add or remove files.
 - 5 Complete the remaining DigiDelivery Send Wizard pages and send the file, following the instructions that came with the DigiDelivery client software.


Chapter 18: File and Session Management and Compatibility

When working with Pro Tools, you will encounter several different kinds of computer files. Pro Tools systems require that you keep certain files in specific hard drive locations in order to function properly:

- Pro Tools software files (such as the application and plug-ins files) should be located on your Startup drive (the drive that contains your operating system and other system-related files).
- Data files (such as session files, audio files, and video files) can be located on any compatible drive connected to your computer's internal or external SAS, SATA, IDE/ATA, FireWire, or SCSI busses (including SCSI HBA).

You can specify the location of new session files when creating new sessions (see “Creating a New Session” on page 168).

In Pro Tools sessions, use the Disk Allocation command to specify where you want newly recorded audio files to be stored (see “Working with Hard Drives for Recording” on page 448).

 *Although Pro Tools lets you record to your system drive, this is generally not recommended. You should record to system drives only when necessary—for example, if your computer system has just one hard drive, or if your other hard drives are completely full.*



If you have a system with multiple drives, you can designate the System drive as a Playback only or Transfer only drive for optimal performance (see “Audio and Video Volume Designators” on page 322).

Audio File Management

Unique File IDs


Pro Tools tags each audio file in a session with a unique identifier that allows it to distinguish a particular file even if its name or location has changed.

Locating Audio Files

With Pro Tools, you manage *links* to audio and other media files using the Relink window.

Pro Tools classifies storage volumes according to their suitability for *performance* (recording or playback) or *transfer* (storage or copying) of audio and other media files. Audio files must be stored on suitable Performance volumes and be properly linked in order to be playable in a Pro Tools session.

When you open a session, if Pro Tools determines that audio files are not located on a Performance volume, or if it is unable to locate audio files contained in the session, you can locate or copy the files in order to play back the session. This process is called *relinking*.

 For more information on storage volume classifications, see “Performance and Transfer Volumes” on page 287.

Transfer Files


Transfer files reside on volumes unsuitable for playback, such as CD or DVD discs, or network drives.

To open a session containing Transfer files:

- Open the Pro Tools session. If any files are on a volume unsuitable for playback, Pro Tools prompts you to do one of the following:
- Click Yes to open the Copy and Relink window.
- Click No to open the session with all Transfer files offline.

To make Transfer files playable in the current session:

- 1 Choose Window > Project.
- 2 Double-click the Audio Files folder to display all of the audio files.
- 3 Choose Select Transfer Files from the Browser menu.
- 4 Choose Copy and Relink from the Browser menu.
- 5 Specify a location for the copied files on a valid Performance volume.
- 6 Click OK.

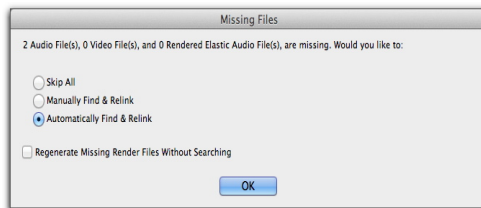
 For more information on relinking Transfer files, see “Linking and Relinking Files” on page 313.

Missing Files

A file is missing if it is not found in the same location as when the session was last saved.

To open a session with missing files:

- 1 Open the Pro Tools session. If any files are missing, Pro Tools posts a Missing Files warning.



Missing files warning when opening a session

- 2 Choose one of the following options:

Skip All Ignores all missing files. Missing files appear offline in the session.

Manually Find and Relink Opens the Relink window, where you can search, compare, verify, and relink missing files.

Automatically Find and Relink Searches all Performance volumes for all missing files with matching name, unique file ID, format, and length, and automatically commits links to missing files where possible.

- 3 To exclude any Rendered Elastic Audio files from the relink process and regenerate them instead, select Regenerate Missing Rendered Files Without Searching.
- 4 Click OK.



For more information on missing files, see “Linking and Relinking Files” on page 313.

Renamed Audio Files and the Renamed Audio Files Folder

Renamed audio files are located in the auto-created Renamed Audio Files folder in the Pro Tools session folder. Files can be renamed when you open a session that references audio file names with incompatible characters. Files can also be renamed in certain situations when saving a copy of a session to a Pro Tools version that does not support long file names

Opening a Session that Contains Audio File Names with Illegal Characters

Pro Tools 7.x and higher does not support audio file names that contain the following ASCII characters:

/ (Forward Slash)

\ (Backslash)

: (Colon)

* (Asterisk)

? (Question mark)

“ (Quotation marks)

< (Less-than symbol)

> (Greater-than symbol)

| (vertical line or pipe)

Any “high order” ASCII character (created with a key combination)

When opening sessions that contain audio file names with illegal characters, Pro Tools automatically creates a renamed copy of each file that contains illegal characters (replacing these characters with an underscore “_”). Renamed files are copied to the Renamed Audio Files folder. The original files are left intact in the Audio Files folder.

Before the session opens, you are prompted to save a detailed report of the renamed files and their original file names to a Notes text file. By default, the Notes text file is saved to the Session folder.



It is possible to have a Pro Tools 7.x or higher session that contains audio file names with illegal characters. If you Save Copy In the session to Pro Tools 6.9.x or lower with Mac/PC Compatibility on, the tracks are renamed with legal characters. If Mac/PC Compatibility is off, the characters are not changed.

Saving a Copy of a Session that Contains Long Audio File Names

When saving files to Pro Tools 6.9.x and lower (using Save Copy In), audio files with file names that exceed the limits of the destination format are truncated and located in the Session folder, as follows:

- If the new session is saved to the same directory as the original, a Renamed Audio Files folder is created in the session’s original folder, and the renamed audio files are placed in it.
- If the new session is saved to a different directory than the original and the All Audio Files option *is not selected*, a new Session folder is created, which includes an Audio Files folder and a Renamed Audio Files folder. Renamed audio files are included in the Audio Files folder.
- If the new session is saved to a different directory than the original and the All Audio Files option *is selected*, a new Session folder is created, which includes an Audio Files folder. Renamed audio files are included in the Audio Files folder.

WAV File Compatibility

Convert Imported WAV files to AES31/BroadcastWave

Pro Tools always creates AES31/Broadcast compliant BWF (.wav) files when the file originates in Pro Tools. Non-BWF .wav files can be added to BWF (WAV) format Pro Tools sessions without conversion. This option ensures that all WAV files are imported, and if necessary, converted to BWF (WAV), compliant with the AES31/EBU Broadcast standard.

AES31/Broadcast Wave is a variant of the standard audio WAV file type. The AES31 format contains SMPTE time stamps and other information beyond the raw PCM audio data.

This variant complies with standards set by the AES (Audio Engineering Society) and EBU (European Broadcasters Union). Choose this option to ensure compatibility with other workstations that recognize this file type.

To make imported WAV files compliant with the AES31/EBU Broadcast standard:

- 1 Choose Setup > Preferences and click the Processing tab.
- 2 Select the Convert Imported “.wav” Files to AES31/BroadcastWave option.
- 3 Click OK.

WAVE Extensible File Format

Pro Tools 10 supports the WAVE Extensible file format for audio files. This file format specifies multiple audio channel data (surround sound) along with speaker positions, which is stored within the audio file header. These audio files are identified in DigiBase browsers with the designation “WAV (BWF EXT)” in the Attributes field.

If you are working with greater-than-stereo multichannel track formats in your Pro Tools sessions, it is recommended that you use the WAV file format.



When using the WAV file format in Pro Tools 10 sessions, the corresponding channel order for each channel of greater-than-stereo, interleaved multichannel files is displayed in the Clip List.

RF64

Pro Tools 10 supports the RF64 audio file format. RF64 is an extension to the WAV audio file format that addresses the 4 gigabyte size limitation of other WAV audio file formats. RF64 audio files are identified in DigiBase browsers with the designation “MBWF” in the Attributes field.



Lower versions of Pro Tools cannot read RF64 files. These files have to be manually edited and consolidated so that they are no larger than 4 GB in order to be available to systems running lower versions of Pro Tools.

Sharing Sessions Created on Different Computer Platforms

Working with Mac-Based HFS+ Drives on Windows Computers

You can use the MacDrive Utility from Mediafour to mount HFS+ drives on an NTFS system for use with Pro Tools.

Moving Sessions on Windows Systems to Mac-Based HFS+ Drives

(From Window-Based NTFS Drives Only)

There are specific steps for transferring session files from Windows-based NTFS drives to Mac-based HFS+ drives.

To transfer Pro Tools Windows sessions from NTFS drives to HFS+ drives:

- 1 Set the MacDrive Options to Backup/File Transfer.
- 2 Do one of the following:
 - Drag the session folder from the NTFS drive to the HFS+ drive.
 - Open the Windows session on the NTFS drive, choose Save Copy In, and save a copy of the session to the HFS+ drive.

Moving Mac-Based Sessions on HFS+ Drives to Windows Systems

(To Windows-Based NTFS Drives Only)

There are specific steps for transferring files from Mac-based HFS+ drives to Windows-based NTFS drives.



To save (or create) Mac sessions to be compatible on Windows systems, see “Saving Copies of Mac Sessions to be Compatible with Windows” on page 400.



When transferring Pro Tools sessions from HFS+ drives to NTFS drives, Pro Tools sessions cannot relink to audio files that have Mac characters that are illegal in Windows. These characters are automatically converted to underscore (“_”) characters. These files are saved to the Renamed Audio Files folder. You need to manually relink each file by File ID. See “Missing Files” on page 396.

To transfer Pro Tools Mac sessions from HFS+ drives to NTFS drives:

- 1 Set the MacDrive Options to Normal Use.
- 2 Do one of the following:
 - Drag the session folder from the HFS+ drive to the NTFS drive.
 - Open the Mac session on the HFS+ drive, and when prompted, choose Save Copy In and save a copy of the session to the HFS+ drive.

If the session previously used SD II files, the files are converted to the new audio file format.

Recording and Playback from HFS+ Drives on Windows

Windows supports recording and playback of sessions directly from Mac-formatted (HFS+) drives using the MacDrive software application.



In older versions of Pro Tools, Mac-formatted HFS+ drives could only be used as Transfer volumes when connected to Windows systems using MacDrive.

When using MacDrive for recording and playback on a Windows system, the session file and all audio files must be stored on Mac-formatted (HFS+) drives. Recording and playback of a session from a mixture of Windows- and Mac-formatted drives is not supported.

To record or play back from HFS+ drives with Windows using MacDrive:

- 1 In Windows, go to the MacDrive Control Panel.
- 2 Choose Options > File Names and select the International Use option.
- 3 Delete all options listed under “File Name Maps.”
- 4 In Pro Tools, choose Window > Workspace and make sure that all Mac-formatted volumes are set to R (record) or P (playback) in the A (Audio) and V (Video) columns.

Saving Copies of Mac Sessions to be Compatible with Windows (Save Copy In to Pro Tools 6.9.x and Lower Only)

Sessions created and saved as Pro Tools 7.x and higher sessions are always compatible on both Windows and Mac systems.

If you create a Pro Tools 6.9.x or lower session on a Mac system, the session is only compatible on Windows systems if the Enforce Mac/PC Compatibility option is selected when using the Save Copy In command. In addition, there are cross-platform limits to consider when completing the Save Copy In command.

Cross-Platform Session Limits

When saving (or creating) a copy of a Pro Tools session that you want to be compatible on both Mac and Windows, keep in mind the following limits and how Pro Tools deals with them:

Audio File Types

The recommended file format for cross-platform interoperability is BWF (.WAV). To support optimal session interchange, Pro Tools defaults to BWF format for new sessions.

Pro Tools lets you save, bounce, and export in a variety of audio file formats, including WAV, AIFF, SD II, MP3, and QuickTime.

File Name Extensions

For cross-platform compatibility, all files in a session must have a 3-letter file extension added to the file name. Pro Tools 5.1 to 6.9.x session files have the extension “.pts,” and Pro Tools 5 sessions have the extension “.pt5.” Wave files have the “.wav” file extension, and AIFF files have the “.aif” file extension.

Incompatible ASCII Characters

Clip names, track names, file names, and plug-in settings cannot use ASCII characters that are incompatible with either system.

When importing files into a session, incompatible characters are converted to underscores (“_”) and the renamed files are placed in the Renamed Files folder.

The following characters cannot be used in Windows sessions:

/ (Forward Slash)

\ (Backslash)

: (Colon)

* (Asterisk)

? (Question mark)

“ (Quotation marks)

< (Less-than symbol)

> (Greater-than symbol)

| (vertical line or pipe)

Any “high order” ASCII character (created with a key combination)

Saving Cross-Platform Sessions

To save an existing session to Pro Tools 6.9.x or lower and maintain Mac and Windows compatibility:

- 1 Choose File > Save Copy In.
- 2 In the Save Session Copy dialog, choose a destination and type a name for the new session file.
- 3 Set the Audio File Type to AIFF or BWF (.WAV). These file formats are compatible with either platform.
- 4 Set the Sample Rate and Bit Depth for the session.
- 5 Select Enforce Mac/PC Compatibility. This option must be selected to make the session cross-platform compatible.
- 6 Select the Items to Copy options for the new session.
- 7 Click Save.


If the session previously used SD II files, the files are converted to the new audio file format.



Pro Tools can convert a file created on a Mac and saved without the “Enforce Mac/PC compatibility” option selected to a Windows compatible file. For more information, see “Sharing Sessions Created on Different Computer Platforms” on page 399.

Sharing Sessions Created on Different Pro Tools Systems

Pro Tools makes it easy to share sessions between Pro Tools HD and Pro Tools. There are some important differences between systems that can affect how session material is transferred. The following table also includes Pro Tools systems with the Complete Production Toolkit.

 For details on transferring sessions between Windows and Mac systems, see “Sharing Sessions Created on Different Computer Platforms” on page 399.

Differences between Pro Tools systems

Feature	Avid HDX Systems	Pro Tools HD Systems	HD Native Systems	Pro Tools with Complete Production Toolkit	Pro Tools
Maximum number of audio tracks	up to 768 tracks (up to 768 voiceable)	up to 768 tracks (up to 192 voiceable)	up to 768 tracks (up to 256 voiceable)	up to 768 tracks (up to 256 voiceable)	up to 128 tracks (up to 96 voiceable)
Maximum number of Auxiliary Input tracks	512 Aux Input tracks	512 Aux Input tracks	512 Aux Input tracks	512 Aux Input tracks	128 Aux Input tracks
Maximum number of Instrument tracks	512 Instrument tracks	512 Instrument tracks	512 Instrument tracks	512 Instrument tracks	64 Instrument tracks
Maximum number of internal mix busses	256 internal mix busses	256 internal mix busses	256 internal mix busses	256 internal mix busses	256 internal mix busses
Inserts per track	up to 10 inserts	up to 10 inserts	up to 10 inserts	up to 10 inserts	up to 10 inserts
Sends per track	up to 10 sends	up to 10 sends	up to 10 sends	up to 10 sends	up to 10 sends

Opening Pro Tools HD Sessions in Pro Tools

A Pro Tools HD session can be opened with Pro Tools, but certain session components open differently or not at all.



Pro Tools with Complete Production Toolkit provides seamless session interchange with Pro Tools HD. For a complete list of features supported by Complete Production Toolkit, see “Complete Production Toolkit” on page 58

When opening a Pro Tools HD 10.x session in Pro Tools 10.x, the following occurs:

Tracks

- Any tracks beyond the first 128 are made inactive.
- Any Instrument tracks beyond 64 are made inactive.
- Any Auxiliary Input tracks beyond 128 are made inactive.
- DSP plug-ins with Native equivalents are converted; those without equivalents are made inactive.
- Multichannel surround tracks are removed from the session.
- Unavailable input and output paths are made inactive.
- HEAT (if present) is removed.

Groups

- Mix Groups keep only Main Volume information.
- Mix/Edit Groups keep only Main Volume and Automation Mode information.
- Automation overflow information for grouped controls is be preserved.
- Group behavior of Solos, Mutes, Send Levels, Send Mutes is be preserved.
- Solo Mode and Solo Latch settings are dropped.

Video

- Only the main video track is displayed.
- Only the first QuickTime movie in the session is displayed or played back.
- If the session contains QuickTime movies in the Clip List but no video track, the session opens with a new QuickTime Movie track containing the first QuickTime movie from the Clip List.
- The Timeline displays and plays back only the video playlist that was last active. Alternate video playlists are not available.

Sharing Sessions Created on Different Pro Tools Software Versions

Pro Tools makes it easy to share sessions between different software versions of a particular Pro Tools system.

Pro Tools 10.x sessions cannot be opened with lower versions of Pro Tools. To save a Pro Tools 10.x session so it is compatible with a lower version of Pro Tools, use the File > Save Copy In command to select the appropriate session format.

Saving Pro Tools 10.x Sessions to Pro Tools 7 → 9 Format


To save a Pro Tools 10.x session so it is compatible with Pro Tools version 7.x through 9.x, use the File > Save Copy In command to choose the Pro Tools 7 → 9 Session format.

When saving a Pro Tools 10.x session to Pro Tools 7 → 9 format, the following occurs:

- Any audio tracks beyond 256 are made inactive
- Clip gain settings are dropped. If you want to apply any clip gain settings prior to saving the session copy, you will need to manually render clip gain settings.
- Fades have to be rendered when the session is opened in a lower version of Pro Tools.
- Sessions with mixed file formats and bit-depths must convert all files to the same file format and bit depth.
- Sessions with files that have a bit depth of 32-bit floating point must be converted to 24-bit or 16-bit.
- For sessions with RF64 files larger than 4 GB, these files will be unavailable to lower versions of Pro Tools. (You will need to manually edit and consolidate these files so that the audio can be available to lower versions of Pro Tools.)

Opening Pro Tools 9.0 Sessions with Pro Tools 8.1 and 8.5

A Pro Tools 9.0 session can be opened with Pro Tools 8.1 and 8.5, but certain session components open differently or not at all.


 *When opening a Pro Tools 9.0 session with Pro Tools 8.1 or 8.5, you are warned that you are opening a session created with a newer version of Pro Tools and that not all session components will be available.*

When opening a Pro Tools 9.0 session with Pro Tools 8.1 or 8.5, the following occurs:

- Any audio tracks beyond 256 are made inactive.
- Any internal mix busses beyond 128 are made inactive.
- The Stereo Pan Depth reverts to -2.5 dB.

Opening Pro Tools 9.0 Sessions with Pro Tools 8.0

A Pro Tools 9.0 session can be opened with Pro Tools 8.0, but certain session components open differently or not at all.


 *When opening a Pro Tools 9.0 session with Pro Tools 8.0, you are warned that you are opening a session created with a newer version of Pro Tools and that not all session components will be available.*

When opening a Pro Tools 9.0 session with Pro Tools 8.0, the following occurs:

- All that occurs when opening a Pro Tools 9.0 session with Pro Tools 8.1.
- Output bus assignments are removed.
- HEAT (if present) is removed.

Opening Pro Tools 9.0 Sessions with Pro Tools 7.4.x

A Pro Tools 9.0 session can be opened with Pro Tools 7.4.x, but certain session components open differently or not at all.


 *When opening a Pro Tools 9.0 session with Pro Tools 7.4.x, you are warned that you are opening a session created with a newer version of Pro Tools and that not all session components will be available.*

When opening a Pro Tools 9.0 session with Pro Tools 7.4.x, the following occurs:

- All that occurs when opening a Pro Tools 9.0 session with Pro Tools 8.0.
- Inserts F–J and any associated automation are removed.
- Clips from audio files larger than 2 GB appear offline.
- Pitch transpositions of Elastic clips are removed.
- Chord markers are removed.

Opening Pro Tools 7.4 or Higher Sessions with Pro Tools 7.3.x or 7.2

A Pro Tools 7.4–9.x session can be opened with Pro Tools 7.3.x or 7.2, but certain session components open differently or not at all.


 *When opening a Pro Tools 7.4–9.x session with Pro Tools 7.3.x, you are warned that you are opening a session created with a newer version of Pro Tools and that not all session components will be available.*


When opening a Pro Tools 7.4.x or higher session with Pro Tools 7.3.x or 7.2, the following occurs:

- All that occurs when opening a Pro Tools 8.x or higher session with Pro Tools 7.4.x.
- Elastic Audio-enabled tracks open without Elastic Audio and clip durations revert to the timing of the original source file.
- Sessions with mixed language characters supported in Unicode may not open or, if they do open, Pro Tools displays “garbage” text.

Opening Pro Tools 7.2 or Higher Sessions with Pro Tools 7.1 or 7.0

A Pro Tools 7.2–9.x session without video tracks or VCA Masters can be opened with Pro Tools 7.1 or 7.0, but certain session components open differently or not at all.

 *When opening a Pro Tools 7.4–9.x session with Pro Tools 7.2, 7.1, or 7.0, you are not warned that not all session components will be available.*

 *Sessions created with Pro Tools HD 7.2–9.x that contain video tracks or VCA Masters can only be opened with Pro Tools HD 7.1cs3 and higher.*

When opening a Pro Tools 7.4–9.x session with a version of Pro Tools 7.1 or 7.0 the following occurs:

- All that occurs when opening a Pro Tools 7.4 or higher session with Pro Tools 7.3.x or 7.2.

Tracks

- VCA Master tracks are removed and any uncoalesced VCA automation is dropped.
- Any uncoalesced Trim automation is dropped.

Groups


- All groups beyond the first 26 (Bank 1, Groups a–z) are dropped.
- Mix Groups keep only Main Volume information.
- Mix/Edit Groups keep only Main Volume and Automation Mode information.
- Automation overflow information for grouped controls is not preserved.
- Group behavior of Solos, LFEs, Mutes, Send Levels, Send Mutes is not preserved.
- Solo Mode and Solo Latch settings are dropped.

Video

- Only the main video track is displayed.
- Only the first QuickTime movie in the session is displayed or played back.
- If the session contains QuickTime movies in the Clip List but no video track, the session opens with a new QuickTime Movie track containing the first QuickTime movie from the Clip List.
- The Timeline displays and plays back only the video playlist that was last active. Alternate video playlists are not available.
- Video clips and video clip groups are not shown or saved.

Opening Sessions Created with Pro Tools HD 7.2–9.x with Pro Tools LE 8.0

A session created with Pro Tools HD 7.2–9.x session that does not contain video tracks or VCA Masters can be opened with Pro Tools LE 8.0, but certain session components open differently or not at all.

 *Session created with Pro Tools HD 7.2 or higher that contain video tracks or VCA Master tracks can only be opened with Pro Tools LE 7.0cs3 and higher.*

When opening a session created with Pro Tools HD 7.x–9.x in Pro Tools LE 8.0, the following occurs:

Tracks

- Any tracks beyond the first 48, as well any inactive tracks, are set to *voice off*.
- Any assignments to busses beyond 32 are made inactive.
- Any Instrument tracks beyond 32 are made inactive.
- TDM plug-ins with RTAS equivalents are converted; those without equivalents are made inactive.
- Multichannel surround tracks are removed from the session.
- Unavailable input and output paths are made inactive.
- Any Delay Compensation settings are removed.
- VCA Master tracks are removed and any uncoalesced VCA automation is dropped.
- HEAT (if present) is removed (Pro Tools HD 8.1 or higher sessions with HEAT option only).
- Output Bus assignments are removed (Pro Tools HD 8.1 or higher sessions only).

Groups

- In Pro Tools LE 7.1 or lower only, all groups beyond the first 26 (Bank 1, Groups a–z) are dropped.
- Mix Groups keep only Main Volume information.
- Mix/Edit Groups keep only Main Volume and Automation Mode information.
- Automation overflow information for grouped controls is be preserved.
- Group behavior of Solos, Mutes, Send Levels, Send Mutes is be preserved.
- Solo Mode and Solo Latch settings are dropped.


Video

- Only the main video track is displayed.
- Only the first QuickTime movie in the session is displayed or played back.
- If the session contains QuickTime movies in the Clip List but no video track, the session opens with a new QuickTime Movie track containing the first QuickTime movie from the Clip List.
- The Timeline displays and plays back only the video playlist that was last active. Alternate video playlists are not available.
- In Pro Tools LE 7.1 or lower only, video clips and video clip groups are not shown or saved.

Saving Pro Tools 10.x Sessions to Pro Tools 5.1 -> 6.9 Format

Pro Tools 7.x and higher sessions cannot be opened with Pro Tools versions 6.9.x through 5.1.

To save a Pro Tools 10.x session so it is compatible with Pro Tools version 6.9.x through 5.1, use the File > Save Copy In command to choose the Pro Tools 5.1 -> 6.9 Session format.

 *Pro Tools 8.x and higher supports file sizes up to 3.4 GB, and Pro Tools 10 sessions support file sizes over 4 GB. However, Pro Tools 5.1 through 6.9 on Mac only supports file sizes up to 2 GB. If your session references audio files larger than 2 GB, be sure to edit and consolidate clips as necessary to reference only files smaller than 2 GB.*

When saving a Pro Tools 10.x session to Pro Tools 5.1 -> 6.9 format, the following occurs:

- All that occurs when saving a Pro Tools 10.x session to Pro Tools 7-9 session format.

Tracks

- Any audio tracks beyond 256 are removed.
- Any internal mix busses beyond 128 are removed.
- Output bus assignments are removed.
- HEAT (if present) is removed.
- Elastic Audio-enabled tracks are saved untransposed, unwarped, and clip durations revert to the timing of the original source file.
- Instrument tracks are split into separate Auxiliary Input and MIDI tracks.
- VCA Master tracks are removed and VCA automation is coalesced to the corresponding slave tracks.
- Trim automation playlists are coalesced to their corresponding automation playlists.

- Fader Gain levels and automation breakpoints higher than +6 dB are changed to +6 dB.
- Long names are shortened to 31 characters.
- The following attributes are dropped:
 - Clip groups
 - Clip loops
 - Sample-based MIDI clips
 - Sample-based MIDI tracks
 - Inserts F-J and any associated automation
 - Sends F-J and any associated automation
 - Marker/Memory Locations 201-999

Groups

- All groups beyond the first 26 (Bank 1, Groups a-z) are dropped.
- Mix Groups keep only Main Volume information.
- Mix/Edit Groups keep only Main Volume and Automation Mode information.
- Automation overflow information for grouped controls is not preserved.
- Group behavior of Solos, LFEs, Mutes, Send Levels, Send Mutes is not preserved.
- Solo Mode and Solo Latch settings are dropped.

Video

- Only the main video track is displayed.
- Only the first QuickTime movie in the session is displayed or played back.
- If the session contains QuickTime movies in the Clip List but no video track, the session opens with a new QuickTime Movie track containing the first QuickTime movie from the Clip List.
- The Timeline displays and plays back only the video playlist that was last active. Alternate video playlists are not available.
- Video clips and video clip groups are not shown or saved.

Language Compatibility

- The Limit Character Set option must be enabled and you must select a single language and character set.

Saving Pro Tools 10.x Sessions to Pro Tools 5.0 Format

Pro Tools 5.1 and higher sessions cannot be opened with Pro Tools version 5.0.

To save a Pro Tools 10.x session so it is compatible with Pro Tools version 5.0, use the File > Save Copy In command to choose the Pro Tools 5.0 Session format.

When saving a Pro Tools 10.x session to Pro Tools 5.0 format, the following occurs:

- All that occurs when saving a Pro Tools 10.x session to Pro Tools 5.0 format.
- Multichannel surround tracks are removed from the session.
- Inactive tracks are removed from the session.
- Tracks assigned to “No Output” are routed to busses 31 and 32.
- Tracks or sends assigned to busses 33–64 are routed to busses 31 and 32.
- Tracks assigned to multichannel paths or sub-paths of multichannel paths are routed to busses 31 and 32.
- Sends assigned to multichannel paths or sub-paths of multichannel paths are dropped.
- Tracks or sends assigned to stereo paths referring to even/odd channels (such as 2–3) are routed to busses 31 and 32.
- Multi-mono plug-in instances are dropped.

Language Compatibility

Unicode Support for Languages

Pro Tools supports entry and display of any language characters supported in Unicode anywhere in the Pro Tools application. This lets you:

- Use multiple languages in session names, and in path names, file names and clip names within the same session.
- Search for terms in multiple languages in DigiBase browsers.

Pro Tools Automatic Naming Language

When working in a language other than English, you can set Pro Tools to automatically name session elements (such as clips, tracks, and I/O paths) in English. This is useful when sharing sessions with other users working in English.

To set the Automatic Naming Language to match the language selected for the Pro Tools application:

- 1 Choose Setup > Preferences and click the Display tab.
- 2 Choose the language you want to use in Pro Tools from the Language pop-up menu.
- 3 Deselect the Default Automatic Naming to English option.

Pro Tools Application Language (Windows Only)

You can choose the language you want to use in the Pro Tools application, independently of what language version of Windows you are using.

To select the language for Pro Tools:


- 1 Choose Setup > Preferences and select the Display tab.
- 2 Choose the language you want to use in Pro Tools from the Language pop-up menu.

Multilingual Application Support for Pro Tools Systems (Localized OS on Mac Only)

Localized versions of Pro Tools (such as Pro Tools Korean, simplified Chinese, or Japanese) can be opened on a qualified Mac that supports English and the localized language versions of Mac. You can also select a different language in any localized version of Pro Tools (including English) in the Apple System Preferences.

To change to a different language version of Pro Tools:

- 1 Close Pro Tools if it is currently open.
- 2 Launch Apple System Preferences.
- 3 Click International (the “flag” icon).
- 4 Click the Language tab.
- 5 In the Languages column, drag the language you want to the top of the list.
- 6 Close the International window.
- 7 Do one of the following:
 - If you are changing from a localized language to English, launch Pro Tools.
 - If you are changing from one localized language to another (or from English to a localized language), log out and log in from the Apple menu, then launch Pro Tools.

 *If you want your computer to start with the previous language (after working on a different language version) follow the above steps and change the International preference back to the previous language.*

Part IV: Playback and Recording

Chapter 19: Playing Back Track Material

After importing or recording audio or MIDI to tracks, you will want to play back the material when editing and mixing.

Starting and Stopping Playback

To start playback, do one of the following:

- Click Play in the Transport.
- Press the Spacebar.
- With the Numeric Keypad mode set to Transport or Shuttle, press 0 on the numeric keypad.
- If the Numeric Keypad mode is set to Transport, and the Use Separate Play and Stop Keys option is enabled, press Enter on the numeric keypad.
- If you have a worksurface or MIDI control surface connected and configured, press the Play switch.
- If Pro Tools is online and slaved to another deck, press play on the master deck (see “Putting Pro Tools Online” on page 1151).



For more information about the Numeric Keypad modes, see “Numeric Keypad Modes” on page 31.

To stop playback, do one of the following:

- Click Stop in the Transport.
- Press the Spacebar.
- With the Numeric Keypad mode set to Transport or Shuttle, press 0 on the numeric keypad.
- If you have a worksurface or MIDI control surface connected and configured, press the Stop switch.
- If Pro Tools is online and slaved to another deck, press stop on the master deck (see “Putting Pro Tools Online” on page 1151).

Example: Playing Back Audio

To play back audio:

- 1 Import or record audio to a track.
- 2 Assign the track’s Output selector to your main monitoring path.
- 3 To have playback start from the beginning of the session, click Return to Zero in the Transport.
- 4 Start playback.
- 5 The audio plays through the selected Output Path. Adjust the track’s volume and pan faders as necessary.
- 6 When you are finished, stop playback.

Example: Playing Back MIDI

To play back MIDI (and monitor the audio):

- 1 Import, record, or enter MIDI into an Instrument or MIDI track.
- 2 For an Instrument track, do the following:
 - Set the Instrument track's audio Output selector to the main monitoring path.
 - If you are using an Instrument Plug-In, insert the plug-in on the track. The track's MIDI Output selector (in Instrument view) should be automatically set to the plug-in.
 - If you are using an external MIDI device (not an Instrument plug-in), set the MIDI Output selector in Instrument view to the MIDI device (port) and channel you want to play back.
 - If you are using an external MIDI device (not an Instrument plug-in), set the Instrument track's audio Input selector to the Input path to which your MIDI device's audio outputs are connected.
- 3 For a MIDI track, do the following:
 - If you are using an Instrument plug-in, create an Auxiliary Input or Instrument track insert the Instrument plug-in on the track.
 - If you are using an external MIDI device (not an Instrument plug-in), create an Auxiliary Input or Instrument track to monitor the audio from an external MIDI device or Instrument plug-in.
 - If you are using an external MIDI device (not an Instrument plug-in), set the Auxiliary Input or Instrument track's audio Input selector to the Input path to which your MIDI device's audio outputs are connected.
 - Set the Auxiliary Input or Instrument track's audio Output selector to the main monitoring path.
 - Set the MIDI track's output selector to the Instrument plug-in, or MIDI device (port), and channel you want to play back.

- 4 To have playback start from the beginning of the session, click Return to Zero in the Transport.
- 5 Start playback.
- 6 The MIDI plays the selected MIDI device, and the audio from the MIDI device is monitored through the selected Output Path on the Auxiliary Input or Instrument track. Adjust the MIDI, Auxiliary Input, or Instrument track's volume and pan faders as necessary.
- 7 When you are finished, stop playback.



For information about synchronizing external MIDI devices with Pro Tools for playback and recording using MIDI Beat Clock, see “MIDI Beat Clock” on page 429, and for information about using MIDI Timecode, see “Generating Timecode” on page 1152.

Playback Location

The playback location is the point in the Pro Tools Timeline where you can begin playing back audio or MIDI in your session.

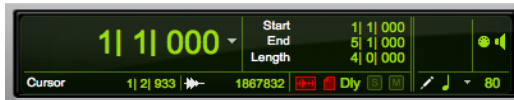
The playback location is displayed in counters and indicators in the Edit window, Transport window, and Big Counter. The playback location (or Edit selection) is also indicated by a playback or edit cursor in the Timeline or playlist of the Edit window.

Pro Tools also provides a pre-roll control for setting playback to begin before the playback location. See “Basic Transport Controls and Counters” on page 191.

Counters and Indicators that Display the Playback Location

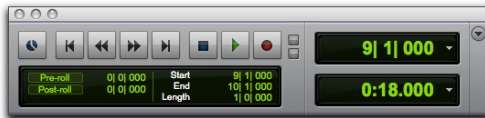
Main and Sub Counters and Edit Selection Indicators

At the top of the Edit window, the playback location is displayed in the Main and Sub counters, and the Edit Selection Start indicator. If no selection is made, the playback location is also displayed in the Edit Selection End indicator.



Main and Sub Counters, Edit Selection indicators


Counters and Edit Selection indicators can also be displayed in the Transport window.




Transport with Counters displayed

To display the Main Counter in the Transport window:

- Select View > Transport > Counters.

 *Control-click (Mac) or Start-click (Windows) the Expand/Collapse button in the Transport window to show or hide counters.*

 *Option-click (Mac) or Alt-click (Windows) the Expand/Collapse button in the Transport window to show or hide counters and MIDI controls.*

To display the Sub Counter in the Transport window:

- 1 Select View > Transport > Counters.
- 2 Select View > Transport > Expanded.

To display Edit Selection indicators in the Transport window:

- Select View > Transport > Expanded.

The Big Counter

The current playback location can also be displayed in the Big Counter.



Big Counter window

To display the Big Counter:

- Choose Window > Big Counter.

Cursors that Indicate the Playback (or Edit) Location

There are two types of cursors in the Pro Tools Edit window for indicating the current playback or Edit selection:

Playback Cursor

The *playback cursor* is a solid line that moves across the Edit window to indicate the current playback location.

The selected Scrolling Option determines how the Edit window scrolls during playback, and how the playback cursor functions. See “Scrolling Options” on page 420 for details.

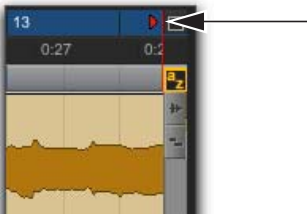
Edit Cursor

The *edit cursor* is a flashing line that appears when you click with the Selector tool in a track's playlist. The flashing edit cursor indicates the start point for any editing tasks performed. If you make a selection and perform an edit, the selection is the target of the edit.

Locating the Playback Cursor when It Is Off-Screen

Use the Playback Cursor locator to locate the playback cursor when it is off-screen.

If the playback cursor is located after the time visible in the Edit window, the Playback Cursor locator appears on the right edge of the Main Timebase ruler. If the playback cursor is located before the time visible in the Edit window, the Playback Cursor locator appears on the left edge of the Main Timebase ruler.



Playback Cursor locator, recording enabled (playback cursor located after currently viewed audio)

For example, if the Scrolling option is set to None, the playback cursor moves off-screen after it has played past the time currently visible in the Edit window. The Playback Cursor locator appears on the right edge of the Main Timebase ruler after the playback cursor has moved beyond the time visible in the Edit window.

The Playback Cursor locator is red when a track is record-enabled and blue when no track is record-enabled.

To locate the playback cursor when it is off-screen:

- Click the Playback Cursor locator in the Main Timebase ruler.

The Edit window changes to center the playback cursor on-screen.

Setting the Playback Location

Pro Tools provides commands for different ways of setting or moving the playback location in a session. These include finding a passage in a song, moving to a different section of your arrangement, or comparing different sections.

Setting Playback Location Using the Selector Tool

To set where playback begins, you can click anywhere in a track with the Selector tool (as long as the Timeline and Edit selections are linked). See “Linking or Unlinking Timeline and Edit Selections” on page 565).



Setting a playback point with the Selector tool

To begin playing from a specific point within a track:

- 1 Make sure that Options > Link Timeline and Edit Selection is enabled.
- 2 With the Selector tool, click in the track where you want playback to begin.
- 3 Start playback.
- 4 Stop playback.

To jump to a different location and begin playing from there, do one of the following:

- When playback is stopped, click with the Selector tool at the point you want to start playback and click Play in the Transport window.
- During playback, click the new location in any Timebase Ruler.

With the Timeline and Edit selections linked, you can click a clip or MIDI note with the Time Grabber tool to automatically update the Timeline with the selection's start time, letting you play from that point.

Setting Playback Location with Basic Transport Controls

Transport controls in the Transport window and top of the Edit window can be used to move the playback location. These include Rewind, Fast Forward, and Return to Zero (to move playback location to the beginning of the session). For more information, see “Basic Transport Controls and Counters” on page 191.

Setting Playback Location with the Main Counter or Edit Selection Start Indicator

To set the playback location using a Main Counter (or the Edit Selection Start indicator):

- 1 Do one of the following:
 - Click in one of the counters.
 - Press asterisk (*) on the numeric keypad to highlight the Main Counter in the Edit window (or the Main Counter in the Transport window or Big Counter window, if either are displayed).
- 2 Type in the new location. Press Period (.) to cycle through to the different time fields.
- 3 Press Enter to accept the new value and automatically locate there.

Setting Playback Location with Fast Forward/Rewind

You can use the Fast Forward and Rewind buttons in the Transport window to move the playback location. If the Operation preference for Audio During Fast Forward/Rewind is selected, the scanned audio is heard (similar to a CD player) when clicking the Fast Forward and Rewind buttons.

You can also fast forward or rewind incrementally by repeatedly clicking the appropriate button. The size of these increments is determined by the Main Time Scale:

Bars|Beats Moves to the beginning of the previous or next bar.

Min:Sec Moves back or forward in one-second steps.

Timecode Moves back or forward in one-second steps (while adjusting for current SMPTE format).


Feet+Frames Moves back or forward in one-foot steps.

Samples Moves back or forward in one-second steps.

Setting Playback Location with Back and Forward Commands (Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

Pro Tools provides four Back/Forward commands (sometimes called “rollback”) for moving the playback location in the Edit window.

You can also move the playback location in multiple increments by repeating the command (See “Repeating Back/Forward Commands” on page 419).

 *Back/Forward commands also work when controlling a 9-pin device. See the Machine-Control Guide for details.*

Back Moves the playback location backward by the Back/Forward Amount.

Back and Play Moves the current playback location backward by the Back/Forward Amount *and* automatically begins playback.

Forward Moves the playback location forward by the Back/Forward Amount.

Forward and Play Moves the current playback location forward by the Back/Forward Amount *and* automatically begins playback.

Setting the Back/Forward Amount

The length of the Back/Forward move is determined by the Back/Forward Amount preference in the Operation page (Setup > Preferences).

To configure the Back/Forward Amount:

- 1 Choose Setup > Preferences and click the Operation tab.

The timebase of the Back/Forward Amount settings follows the Main Time Scale by default, or you can deselect Follow Main Time and select any of the following timebase formats:

- Bars|Beats
- Min:Sec
- Timecode
- Feet+Frames
- Samples

- 2 Do one of the following:

- Select a preset amount in the Back/Forward Amount pop-up menu.
- In the Back/Forward Amount field, enter a custom amount.

Using Back or Forward Commands

To move the playback location backward by the Back/Forward Amount:

- Press Command (Mac) or Control (Windows), and click Rewind in the Transport window.

To move the playback location forward by the Back/Forward Amount:

- Press Command (Mac) or Control (Windows), and click Fast Forward in the Transport window.

To move the playback location backward by the Back/Forward Amount and then begin playback:

- Press Command+Option (Mac) or Control+Alt (Windows), and click Rewind in the Transport window.

To move the playback location forward by the Back/Forward Amount and then begin playback:

- Press Command+Option (Mac) or Control+Alt (Windows), and click Fast Forward in the Transport window.

Repeating Back/Forward Commands

All the Back/Forward commands can be repeated in order to increase the amount of the total Back or Forward move.

To repeat Back/Forward moves:

- 1 Hold Command (Mac) or Control (Windows).
- 2 Click Rewind or Fast Forward the number of times you want to repeat moving the playback location backwards or forwards by the specified Back/Forward Amount.

Extending Selections with Back or Back and Play Commands

The Back or Back and Play commands can be used to extend a selection backwards by the length of the specified Back/Forward Amount.



Although you cannot extend a selection with the Forward or Forward and Play commands, you can use the following procedures with Forward or Forward and Play to move the start point of a current selection.

To extend a selection with Back or Back and Play commands:

- 1 Specify the Back/Forward Amount. (See “Setting the Back/Forward Amount” on page 418.)
- 2 With the Selector tool, drag within a track to make a selection.

3 Do one of the following:

- To extend the selection backwards by the Back/Forward Amount, press Shift+Command (Mac) or Shift+Control (Windows) and click Rewind in the Transport window.
- To extend the selection backwards by the Back/Forward Amount and then begin playback, press Shift+Command+Option (Mac) or Shift+Control+Alt (Windows) and click Rewind in the Transport window.

Additional Ways of Moving the Playback Location

You can also move the playback location with the following:

Shuttle Lock Modes With either Shuttle Lock mode (Classic or Transport) you can use the numeric keypad to shuttle forward or backwards at specific speeds. For more information, see “Shuttle Lock Modes” on page 32.

Memory Locations Memory Locations can be used to move the playback location (or Edit selection). When a Memory Location is recalled, the playback location (or Edit selection) updates. Memory Locations can be recalled from the Memory Locations window and from the numeric keypad. In addition, Marker Memory Selections can be recalled by clicking them in the Markers ruler. For more information, see “Recalling Memory Locations” on page 812.

Tabbing to Transients With the Tab to Transients button enabled, you can automatically navigate to transients in audio waveforms, placing the cursor just before the detected transient peak. For more information, see “Tabbing to Transients” on page 576.

Scrolling Options

You can configure how contents of the Edit window scroll during playback and recording.

To configure Scrolling options:

- Choose Options > Scrolling and select one of the following options:


None The Edit window does not scroll during or after playback. The playback cursor moves across the Edit window, indicating the playback location.

After Playback The playback cursor moves across the Edit window, indicating the playback location. When playback has stopped, the Edit window scrolls to the final playback location.

Page The playback cursor moves across the Edit window, indicating the playback location. When the right edge of the Edit window is reached, its entire contents are scrolled, and the playback cursor continues moving from the left edge of the window. For more information, see “Page Scrolling During Playback” on page 420.

Continuous (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) See “Continuous Scrolling During Playback” on page 420.

Center Playhead (Pro Tools HD Only) See “Center Playhead Scrolling” on page 421.

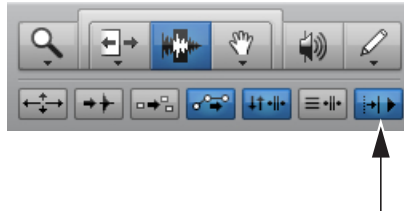
 *Making a selection in the Timeline or a playlist, or manually scrolling the Timeline while in Page Scroll or Continuous Scroll mode suspends page scrolling. To resume page scrolling and jump to the current playback location, click the Playback Cursor locator in the Main Timebase ruler (see “Locating the Playback Cursor when It Is Off-Screen” on page 416).*

Page Scrolling During Playback


You can set Pro Tools to scroll the track display while playing, and also have the edit cursor appear wherever playback stops.


To make the track display and the edit cursor follow playback:

- Enable the Timeline Insertion/Play Start Marker Follows Playback button in the Edit window.



Timeline Insertion/Play Start Marker Follows Playback button enabled

 *You can enable or disable the Timeline Insertion/Play Start Marker Follows Playback option in the Operation Preferences.*

 *Press Control+N (Mac) or Start+N (Windows) to toggle the Timeline Insertion/Play Start Marker Follows Playback preference on and off.*

Continuous Scrolling During Playback

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

When this scrolling option is selected, the Edit window's contents scroll continuously past the playback cursor, which remains in the center of the window. With this option, playback is always based on the Timeline selection (unlike the Center Playhead Scrolling option).

Continuous Scrolling During Playback uses host processing power, so use this option with host-based Pro Tools systems only when absolutely necessary.

Center Playhead Scrolling (Pro Tools HD Only)

When this scrolling option is selected, the Edit window's contents scroll continuously past the *Playhead*, which is a blue line in the center of the window (or a red line when recording).

The Playhead indicates where playback begins when clicking Play in the Transport window.



Center Playhead Scrolling option

To move the Playhead to a particular location for playback, you can scroll there in a ruler (see “Scrolling in a Timebase Ruler” on page 579), use the Edit window's horizontal scroll bar, or type the location into one of the Edit Selection indicators or one of the Counters.

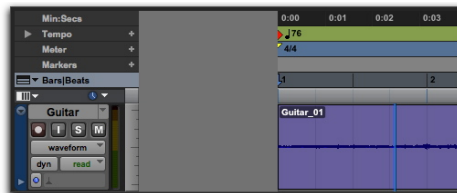
Moving the Playhead with these methods does not update the Timeline selection. However, updating the Timeline selection automatically moves the Playhead to the Timeline insertion point.

With the Playhead enabled, you can jump to and play an Edit or Timeline selection. For details, see “Playing Timeline and Edit Selections with the Playhead” on page 423.

⚠ *Center Playhead Scrolling and Dynamic Transport mode cannot be used at the same time. Selecting Center Playhead Scrolling disables Dynamic Transport mode (if it is enabled). Likewise, enabling Dynamic Transport mode when Center Playhead Scrolling is selected automatically changes the Scrolling option to No Scrolling.*

Half-Screen Edit Window

When the Scrolling option is set to Continuous or Center Playhead, a half-screen appears at the far left of the Edit window (before the beginning of the session) when the Playhead is at the beginning of the session.



Half-screen for Center Playhead Scrolling option

Playing Selections

Once an Edit selection is made, you can audition it by clicking Play in the Transport window. If enabled, the pre- and post-roll amounts play as well.

To play a selection:

- 1 Select Options > Link Timeline and Edit Selection.
- 2 With the Selector or Time Grabber tool, make a track selection.
- 3 If you want to use pre-roll or post-roll, enable and set the pre-roll and post-roll amounts. For details, see “Setting Pre- and Post-Roll” on page 464.

- 4 Click Play in the Transport window, or press the Spacebar.

All tracks play for the range of the selection, including pre-roll and post-roll if enabled.

To play an Edit selection with Link Timeline and Edit Selection disabled:

- Choose Edit > Selection > Play Edit.

To play a Timeline selection with Link Timeline and Edit Selection disabled:

- Choose Edit > Selection > Play Timeline.

Auditioning Pre-Roll and Post-Roll

You can audition and play *just* the pre-roll or post-roll material for a selection.

To play from the pre-roll point to the start of a selection, or to the current Cursor location:

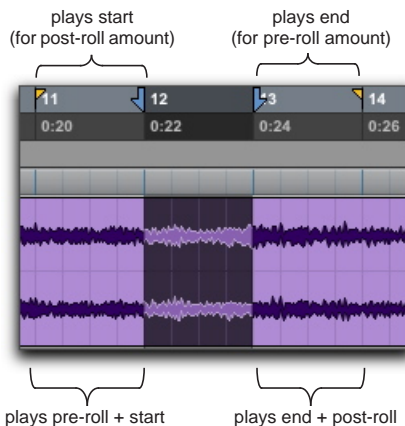
- Press Option+Left Arrow (Mac) or Alt+Left Arrow (Windows).

To play to the post-roll point from the end of a selection, or from the current Cursor location:

- Press Command+Right Arrow (Mac) or Control+Right Arrow (Windows).

Auditioning Start and End Points for Selections

There may be times when you want to audition the start or end of an audio selection without hearing the entire selection. This allows you to check, for instance, whether the beginning or end of a selection includes any unwanted clicks or pops.



Playback ranges for auditioning start/end points

To audition a selection start point:

- Press Command+Left Arrow (Mac) or Control+Left Arrow (Windows).

When auditioning the beginning of a selection, the selection plays from the start point for a duration equal to the post-roll amount.

To audition a selection start point with pre-roll:

- Press Command+Option+Left Arrow (Mac) or Control+Alt+Left Arrow (Windows).

To audition a selection end point:

- Press Option+Right Arrow (Mac) or Alt+Right Arrow (Windows).

When auditioning the end of a selection, playback begins before the end point by the pre-roll amount.

To audition a selection end point with post-roll:

- Press Command+Option+Right Arrow (Mac) or Control+Alt+Right Arrow (Windows).

Playing Timeline and Edit Selections with the Playhead

(Pro Tools HD Only)

When the Scrolling option is set to Center Playhead, selections in the Timeline do not determine when playback begins. The Playhead itself denotes where playback begins when clicking Play in the Transport.

Timeline and Edit selections, however, can still be played when the Playhead is enabled.

To play an Edit selection with the Playhead enabled:

- 1 Deselect Options > Link Timeline and Edit Selections.
- 2 Select Options > Scrolling > Center Playhead.
- 3 With the Selector or Time Grabber tool, make a track selection.
- 4 Choose Edit > Selection > Play Edit.

The Playhead jumps to the Edit selection and plays it from beginning to end, and then stops.

To play a Timeline selection with the Playhead enabled:

- 1 Deselect Options > Link Timeline and Edit Selections.
- 2 Select Options > Scrolling > Center Playhead.
- 3 Drag with the Selector tool in any Timebase ruler to set the play range.
- 4 Choose Edit > Selection > Play Timeline.

The Playhead jumps to the Timeline selection and plays it from beginning to end, and then stops.

Moving the Playhead

When the Scrolling option is set to Center Playhead, the Playhead can be moved forward or back to the next clip boundary in the selected track.

To move the Playhead through a track's clip boundaries:

- 1 Make sure the Tab to Transients button is not enabled (see “Tabbing to Transients” on page 576).
- 2 Click in the track with the Selector tool.
- 3 Do one of the following:
 - Press Tab to move the Playhead forward to the next clip boundary.
 - Press Option+Tab (Mac) or Control+Tab (Windows) to move the Playhead back to the previous clip boundary.

Playback Modes

Pro Tools provides several Playback modes:

- Normal Playback mode
- Half-Speed Playback mode
- Prime for Playback mode
- Loop Playback mode
- Dynamic Transport mode

Normal Playback Mode

Normal Playback mode is simply when none of the other Playback modes are selected. In Normal Playback mode, Pro Tools plays back at the session sample rate.

Half-Speed Playback Mode

Use Half-Speed Playback mode to learn or transcribe difficult passages in recorded tracks.

To play at half-speed:

- 1 Do one of the following:
 - Shift-click the Play button in the Transport.
 - Right-click the Play button in the Transport and select Half-Speed. Then click Play to start Half-Speed Playback.



You can also play at half-speed by pressing Shift+Spacebar.

- 2 Click Stop in the Transport to stop playback.

Prime for Playback Mode

When playing back a large number of tracks, Pro Tools may take a little longer to actually start playback. To avoid this delay, put Pro Tools in Prime for Playback mode before starting playback.

To enable Prime for Playback mode and start playback:

- 1 Do one of the following:
 - Option-click (Mac) or Alt-click (Windows) Play in the Transport to put Pro Tools in Prime for Playback mode.
 - Right-click the Play button and select Prime for Playback.

The Stop button lights and the Play button flashes.

- 2 To begin playback instantaneously, click Play.
- 3 Click Stop to stop playback.



When synchronizing to timecode, use Prime for Playback mode to play back large numbers of tracks. This decreases the time it takes to lock to timecode.

Loop Playback Mode

When Loop Playback mode is enabled, the selected track range repeats on playback. If there is no selection, playback occurs normally from the current Cursor location.



A selection must be at least 500 ms in length for it to loop on playback.

Looping playback is a useful way to check the rhythmic continuity of a selection when working with musical material. If you're working with one-bar selections, you can loop playback to see if the material loops cleanly. If it seems to skip, you should then adjust the length of the selection until it works “musically” within the context of the playlist and the other tracks.

To loop playback of a selection:

- 1 Select Options > Link Timeline and Edit Selection.
- 2 With the Selector tool, select the track range you want to loop.
- 3 Enable Loop Playback by doing one of the following:
 - Select Options > Loop Playback.
 - Right-click the Play button in the Transport window and select Loop from the pop-up menu.
 - Control-click (Mac) or Start-click (Windows) the Play button in the Transport window.
 - Press Command+Shift+L (Mac) or Control+Shift+L (Windows).
 - With the Numeric Keypad mode set to Transport, press 4 on the numeric keypad.

When enabled, a loop symbol appears in the Play button in the Transport window.



Loop Playback enabled

- 4 Click Play in the Transport window.

Playback begins from the pre-roll point (if enabled) and continues to the selection's end point, where it loops back to the selection's start point.

- 5 Click Stop in the Transport window to stop playback.

Loop Playback and Audio Recording

Looping playback does *not* enable loop recording. Use Loop Record mode to loop during recording (see “Loop Recording Audio” on page 469).

Dynamic Transport Mode

Dynamic Transport mode lets you decouple the playback location from the Timeline selection. This means that you can start playback from anywhere on the Timeline without losing your Timeline or Edit selections. For example, you can use Dynamic Transport mode in conjunction with Loop Playback mode to quickly audition loop transitions.

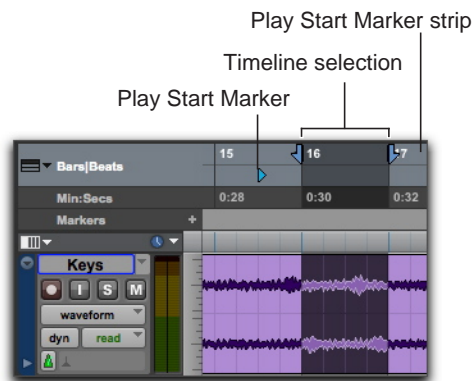
When Dynamic Transport mode is enabled, the Main Timebase ruler expands to double-height and reveals the new Play Start Marker. The Play Start Marker determines where playback starts when the Transport is engaged. You can position the Play Start Marker independently of the Timeline Selection. The Play Start Marker can be repositioned during playback and playback continues from the new location.

To enable or disable Dynamic Transport mode, do one of the following:

- Select or deselect Options > Dynamic Transport.
- Right-click the Play button in the Transport window and select Dynamic Transport from the pop-up menu.
- Press Command+Control+P (Mac) or Control+Start+P (Windows) to toggle Dynamic Transport mode on or off.

⚠ *Enabling Dynamic Transport mode automatically disables Link Timeline and Edit Selection, and automatically enables Loop Playback mode.*


⚠ *Center Playhead Scrolling (Pro Tools HD only) and Dynamic Transport mode cannot be used at the same time. Selecting Center Playhead Scrolling disables Dynamic Transport mode (if it is enabled). Likewise, enabling Dynamic Transport mode when Center Playhead Scrolling is selected automatically changes the Scrolling option to No Scrolling.*



Dynamic Transport mode, Play Start Marker shown in expanded Main Timebase ruler


To reposition the Play Start Marker, do one of the following:

- With any Edit tool selected, click in the Play Start Marker strip in the Main Timebase ruler.
- With any Edit tool selected, drag the Play Start Marker to a new location.
- Click Fast Forward or Rewind in the Transport to relocate the Play Start Marker forward or backward by the standard Fast Forward and Rewind increment amount.

 Double-click anywhere in the Play Start Marker strip in the Main Timebase ruler to move the Play Start Marker to that location and start playback.

To change the Timeline Selection Start or End Markers:

- 1 Make a Timeline selection with the Selector tool by dragging in the Main Timebase ruler. If the Link Timeline and Edit Selection option is enabled, you can make an Edit selection with the Selector or any of the Grabber tools.
- 2 With any Edit tool selected, drag either the Timeline Selection Start or End Markers left or right, extending or constricting the Timeline selection.


 Changes to the Timeline selection during playback temporarily interrupt playback. To minimize this interruption, reduce the DAE Playback Buffer size in the Playback Engine dialog.

To move the Timeline selection:

- With any Edit tool selected, drag the selection on the Main Timeline ruler to another location.



Dynamic Transport mode, moving the Edit selection

 When the Link Timeline and Edit Selection option is disabled, Option-drag (Mac) or Alt-drag (Windows) the Timeline selection to snap the Edit selection to the Timeline selection and move both in tandem.

Play Start Marker Follows Timeline Selection

When enabled, the Play Start Marker snaps to the Timeline Selection In Point when you move the Timeline Selection, draw a new Timeline Selection, or adjust the Timeline Selection Start. When disabled, the Play Start Marker doesn't move with the Timeline selection.

To have the Play Start Marker always snap to the Timeline Selection In Point:

- 1 Choose Setup > Preferences.
- 2 Click the Operation tab.
- 3 Select Play Start Marker Follows Timeline Selection.
- 4 Click OK.


Timeline Insertion/Play Start Marker Follows Playback

When enabled, the Play Start Marker moves to the point in the Timeline when playback stops. When disabled, the Play Start Marker does not follow playback.

When not in Dynamic Transport mode, the Timeline Insertion follows playback.

To have the Timeline Insertion and the Play Start Marker follow playback:

- 1 Choose Setup > Preferences.
- 2 Click the Operation tab.
- 3 Select Timeline Insertion/Play Start Marker Follows Playback.
- 4 Click OK.

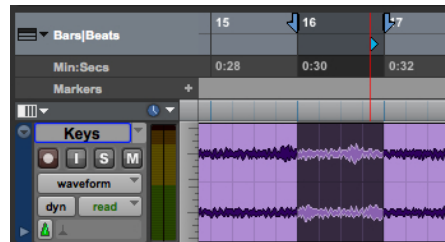
 Press **Control+N** (Mac) or **Start+N** (Windows) to toggle the Timeline Insertion/Play Start Marker Follows Playback preference on and off.

Using Dynamic Transport Mode with Loop Playback

Use Dynamic Transport mode in conjunction with Loop Playback to specify the loop start and end points with the Timeline selection while using the Play Start Marker to specify where playback begins. This is especially useful for auditioning loop transitions. Note that enabling Dynamic Transport mode automatically enables Loop Playback mode.

To audition a loop transition:

- 1 Enable Dynamic Transport mode.
- 2 Ensure that Loop Playback mode is enabled.
- 3 Make a Timeline selection to loop.
- 4 Reposition the Play Start Marker before the Timeline Selection Out Point.



Dynamic Transport mode, auditioning the loop transition

- 5 Start playback.


Playback starts before the loop end point and continues across the loop point through the loop start. You can reposition the Timeline Selection Start and End Markers by dragging them left or right, even during playback.

Using Separate Play and Stop Keys

When enabled, the Use Separate Play and Stop Keys option lets you start playback with the Enter key and stop playback with the 0 key on the numeric keypad. This is useful for quickly starting and stopping playback when auditioning loop transitions.

To use separate play and stop keys on the numeric keypad:

- 1 Choose Setup > Preferences.
- 2 Click the Operation tab.
- 3 Select Transport for Numeric Keypad.
- 4 Select Use Separate Play and Stop Keys.

 *This option overrides using the Enter key to add Memory Location markers. Press Period (.) and then Enter on the numeric keypad to add a Memory Location marker.*

- 5 Click OK.

The Enter key starts playback. The Zero key stops playback. Pressing Zero twice locates the Play Start Marker to the Timeline Selection start.

Keyboard Shortcuts for Relocating the Play Start Marker

In Dynamic Transport mode, you can use keyboard shortcuts to quickly relocate the Play Start Marker either during playback or when the Transport is stopped.

To move the Play Start Marker to the Timeline Selection Start:

- Press Period (.) on the numeric keypad and then the Left Arrow.

To move the Play Start Marker to the Timeline Selection End:

- Press Period (.) on the numeric keypad and then the Right Arrow.

To move the Play Start Marker to the Edit Selection Start:

- Press Period (.) on the numeric keypad and then the Down Arrow.

To move the Play Start Marker to location of the Playhead:

- Press Period (.) on the numeric keypad and then the Up Arrow.

To nudge the Play Start Marker backward (rewind):

- Press 1 on the numeric keypad.

To nudge the Play Start Marker forward (fast forward):

- Press 2 on the numeric keypad.

To move the Play Start to a specific bar:


- With Bars|Beats selected as the Main Timebase ruler, do the following on the numeric keypad:
 - Press Asterisk (*).
 - Type the bar number.
 - Press Enter.

Recording in Dynamic Transport Mode

Recording in Dynamic Transport mode lets you start playback independently of the Timeline selection. Use the Play Start marker as a manual pre-roll before the Timeline selection. Recording punches in and out based on the Timeline selection.

MIDI Beat Clock

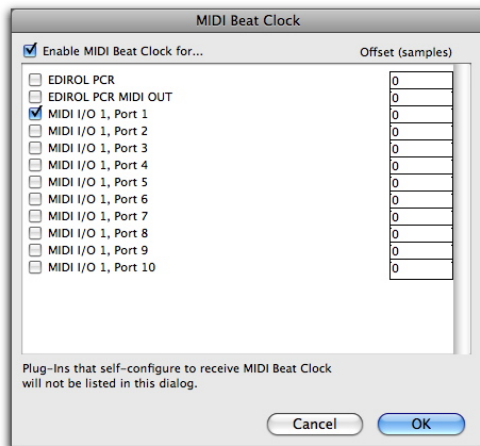
Pro Tools can transmit MIDI Beat Clock to synchronize external MIDI devices that receive MIDI Beat Clock (such as drum machines, hardware sequencers, or arpeggiators) with the Pro Tools session tempo for playback and recording. Some instrument plug-ins also support MIDI Beat Clock for synchronizing to the Pro Tools tempo.

 *For information about synchronizing external MIDI devices with Pro Tools for playback and recording using MIDI Timecode, see “Generating Timecode” on page 1152.*

Transmitting Beat Clock

To transmit MIDI Beat Clock:

- 1 Choose Setup > MIDI > MIDI Beat Clock.
- 2 In the MIDI Beat Clock dialog, select the Enable MIDI Beat Clock option.
- 3 Select the devices you want to receive MIDI Beat Clock. If your MIDI interface does not support transmitting MIDI Beat Clock to separate ports, only the interface appears as a destination.



MIDI Beat Clock dialog

- 4 Enter the correct negative offset values (such as “–200” samples) for each port that is enabled for transmitting MIDI Beat Clock (see “Measuring Beat Clock Latency” on page 430).
- 5 Click OK.

Sending MIDI Beat Clock Over IAC

(Mac Only)

You can synchronize other MIDI applications that use the Apple Inter-Application Communication (IAC) driver to Pro Tools by transmitting MIDI Beat Clock on the IAC bus.

To transmit MIDI Beat Clock on the IAC bus:

- 1 Choose Setup > MIDI > MIDI Studio.
- 2 In the MIDI Devices window of Audio MIDI Setup, double-click the IAC Driver icon.
- 3 Configure the IAC Driver ports and confirm that it is online.
- 4 Choose Setup > MIDI > MIDI Beat Clock.
- 5 In the MIDI Beat Clock dialog, select the Enable MIDI Beat Clock option.
- 6 Select the IAC Driver ports you want to enable for sending MIDI Beat Clock.
- 7 Click OK.

MIDI Beat Clock Offsets

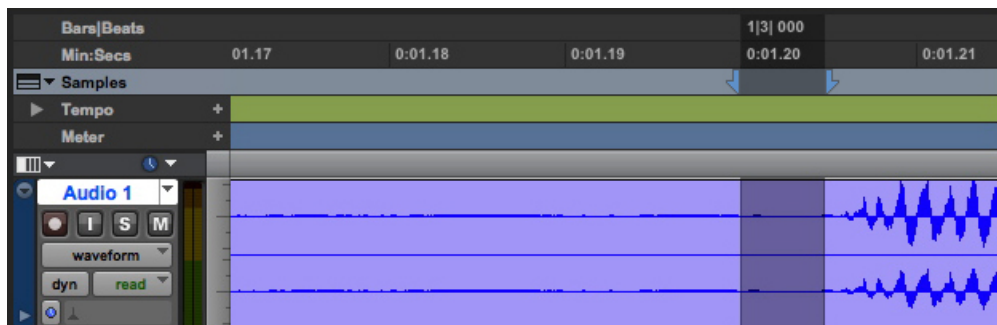
You can set an offset for MIDI Beat Clock on a port-by-port basis with your MIDI interface and external MIDI devices. This lets you adjust the timing for each device where some devices sound late due to different, fixed latencies. Where appropriate, enter negative offset values in samples for each port to correctly synchronize the audio signals from your external MIDI devices with Pro Tools playback.

Measuring Beat Clock Latency

To determine the correct MIDI Beat Clock offset for an external MIDI device:

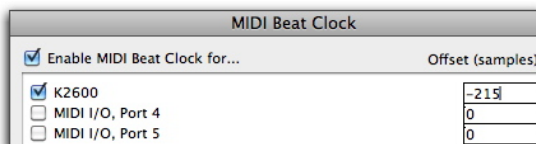
- 1 Ensure that your computer and external MIDI device are correctly connected and configured for MIDI, and that its audio output is correctly connected to audio inputs on your Pro Tools audio interface.
- 2 Ensure that your external MIDI device is configured to receive MIDI Beat Clock, and that it is correctly configured to play back a simple rhythmic pattern “on the beat.”
- 3 Create a new Pro Tools session.
- 4 In the MIDI Beat Clock dialog, ensure that MIDI Beat Clock is enabled and that the device is selected.
- 5 Set the Main Time Scale to Bars|Beats.
- 6 Create a new audio track and select the audio input channels for your external MIDI device.
- 7 Record enable the audio track and start recording. MIDI Beat Clock is sent to the external MIDI device, which starts playing back the pattern.
- 8 Stop recording after a few bars.
- 9 Enable both Snap to Grid and Show Grid.

- 10 With the Selector tool, place the edit cursor on the beat grid prior to a prominent transient in the waveform that is “on the beat.”
- 11 Enable Tab to Transients and Shift+Tab to the transient. The duration of this selection is the approximate amount of latency for your external MIDI device.



Measuring the offset for MIDI Beat Clock in samples

- 12 Switch the Main Time Scale to Samples. The length of the selected clip in samples is the MIDI Beat Clock latency for that device.
- 13 In the MIDI Beat Clock dialog, enter the Sample Offset value as a negative number.



MIDI Beat Clock Sample Offset

💡 *Since MIDI is not sample accurate, you may want to make several measurements at different grid locations and average them to come up with the best value for the MIDI Beat Clock Offset.*


💡 *Once you have measured the latency for your MIDI Beat Clock-enabled devices, be sure to keep a record of these values in case you need to re-enter the MIDI Beat Clock Sample Offset in other sessions.*

Chapter 20: Record Setup

Before you start recording in Pro Tools, you need to set up your Pro Tools system, a session, and one or more tracks for recording. You will also need to configure how Pro Tools monitors the input you intend to record.

While some of the information here is relevant to preparing to record MIDI, there are more specific setup details for MIDI recording in Chapter 22, “MIDI Recording.”

For information on recording audio, see Chapter 21, “Audio Recording.”

 *For information on digitizing (recording) video in Pro Tools, see Chapter 51, “Working with Video in Pro Tools” or the Avid Video Peripherals Guide.*

Record Setup Overview

Record setup includes the following:

Hardware Setup for Recording

- “Configuring Pro Tools Hardware I/O for Recording” on page 434
- “Connecting a Sound Source” on page 435

Session Setup for Recording

- Configuring a new or existing session for recording:
 - “Working with Hard Drives for Recording” on page 448
 - “Recording with a Click” on page 435
 - “Setting the Session Meter and Tempo” on page 438
 - Setting a Record Mode. See “Record Modes” on page 440

Track Setup for Recording

- Configuring one or more tracks for recording:
 - “Configuring Default Names for Audio Files and Clips” on page 443
 - “Assigning Hardware I/O on a Track” on page 445
 - “Record Enabling Tracks” on page 446
 - “Recording with Multiple Hard Drives” on page 449

Monitoring Setup for Recording

- “Selecting a Record Input Monitoring Mode” on page 452
- “Setting Monitor Levels for Record and Playback” on page 454
- “Reducing Monitoring Latency” on page 454
- “Recording with Delay Compensation” on page 455

Configuring Pro Tools Hardware I/O for Recording

Before you start recording, make sure your Pro Tools system hardware is connected and configured properly. For details on connecting Pro Tools to your studio and configuring your Hardware in the Hardware Setup dialog, see the *User Guide* that came with your system. For information on how to route signal paths in Pro Tools, see Chapter 7, “I/O Setup.”

Input Connections and Audio Levels

Avid HD audio interfaces operate as line-level devices and offer no pre-amplification. Low-level sources like microphones and electric guitars need to be pre-amplified. You can do this with a quality mixing board or dedicated preamp (such as PRE).



PRE can be remote-controlled from within Pro Tools sessions.

003 Rack+ has eight inputs with preamps, to which you can connect low-level signals.

003, 003 Rack, Digi 002, and Digi 002 Rack have four inputs with preamps, to which you can connect low-level signals, and four additional line-level inputs with switchable gain.

Eleven Rack has one Mic input with a preamp and 1 instrument-level Guitar input with a special variable-impedance circuit called True-Z (for more information, see the *Eleven Rack User Guide*.)

Mbox (3rd generation), Mbox 2, Mbox Pro, Mbox 2 Pro, Mbox Mini, and Mbox 2 Mini each have two inputs with preamps, to which you can connect low-level signals.

For all systems, volume and pan controls for tracks in Pro Tools only affect monitoring levels—not the recording input gain. The LED meters on Pro Tools audio interfaces indicate both full-code (highest level before clipping) and true clipping of Pro Tools output signals. The on-screen meters in Pro Tools indicate only true clipping.

Digital Clipping

Clipping occurs when you feed a signal to a recorder or mixer that is louder or “hotter” than the device allows. On many analog tape decks, a little clipping adds a perceived warmth to the sound due to tape compression. In digital recording, however, clipping causes digital distortion, which is undesirable and should always be avoided.

Set Input Levels

When you feed a signal into any audio recording system, including Pro Tools, make sure to adjust the input level to optimize the dynamic range and signal-to-noise ratio of the recorded file. If the input level is too low, you will not take full advantage of the dynamic range of your Pro Tools system. If the input level is too high, the waveform can clip and distort the recording. Set the input levels high, but not high enough to clip.

As a general rule of thumb, try to set levels so that they peak within -6 dB to -12 dB on the input meter without triggering the clipping indicator on your audio interface. Depending on the type of material you are recording and its dynamic range and peak content, you may want to record with higher or lower levels.

You can display a track’s input levels in its Volume/Peak/Delay indicator. Normally, this indicator is set to be a Volume indicator. When you change it into a Peak indicator, it can function as a headroom indicator based on the last peak playback level.

To display a track's peak level:

- Control-click (Windows) or Command-click (Mac) a track's Volume indicator to step through the different indicator modes (Volume, Peak, and Channel Delay) until the indicator displays peak (pk) level.

Calibration Mode

(Pro Tools HD Only)

You can use the Calibration mode in Pro Tools to adjust the input and output levels for your audio interface so they match those of your mixing console and other audio devices in your studio.

HD I/O has one set of adjustable trim pots for its inputs. Additionally, the reference level for the input can be set to +4 dBu or –10 dBV. For more information on calibrating HD I/O, see the *HD I/O Guide*.

192 I/O has two sets of adjustable trim pots for its inputs, and two sets of adjustable trim pots for its outputs. Additionally, the reference level for the input can be set to +4 dBu or –10 dBV. For more information on calibrating 192 I/O, see the *192 I/O Guide*.

There are no input or output trims on the following audio interfaces: HD OMNI, HD MADI, 192 Digital I/O, 96 I/O, and 96i I/O. Some Pro Tools audio interfaces that do not have output trims (such as the 96i I/O) offer software-controllable input levels, adjustable from Setup > Hardware (see the guide for your particular audio interface).

Connecting a Sound Source

Depending on your Pro Tools audio interfaces, you can connect different types of sound sources (such as musical instruments, mics, and mixer outputs). See the *User Guide* for your Pro Tools system. For additional information, see the documentation that came with your sound source.

If you connect a sound source to a Pro Tools input that was not previously configured to accept input, you may need to reconfigure your hardware in the Hardware Setup dialog (see your *User Guide*). You may also need to reset your I/O signal paths in I/O Setup (see Chapter 7, “I/O Setup.”).

Recording with a Click

If you intend to work with MIDI or Instrument tracks in your session, or if the audio you're working with is bar and beat-oriented, you can record your tracks while listening to a *click*. This ensures that recorded material, both MIDI and audio, aligns with the session's bar and beat boundaries.


When your track material lines up with the beats, you can take advantage of some very useful editing functions in Pro Tools, such as quantizing MIDI and audio events or clips, quantizing individual MIDI notes, and copying and pasting measures and song sections in Grid mode.



Material that is recorded without listening to a click can still be aligned to bar and beat boundaries in Pro Tools with Beat Detective (see Chapter 30, “Beat Detective”), or by using the Identify Beat command to determine the tempo (see “Identify Beat Command” on page 790).

Creating a Click Track

Pro Tools lets you create a Click track using the Click plug-in. You can also create a click track using the TL Metro plug-in (included with Pro Tools) or using a MIDI instrument.

 *For more information on the Click or the TL Metro plug-in, see the Audio Plug-Ins Guide.*

To create a click track using the Click plug-in:

- Choose Track > Create Click Track.

Pro Tools creates a new Auxiliary Input track named “Click” with the Click plug-in already inserted. In the Edit window, the click track’s Track Height is set to Mini. You can create more than one click track and each subsequent click track is named in sequence. For example, Click 1, Click 2, and Click 3.

To hear the click during playback and recording, configure the Click Options (see “Click Options” on page 437) and ensure that Click is enabled (see “Enabling the Click” on page 436).

To create a click track using MIDI:

- 1 Create a new (mono) Auxiliary Input or Instrument track.
- 2 Do one of the following:
 - From the track’s Input selector, select the path to which the MIDI device is connected.
 - Insert an instrument plug-in on the track (such as TL Metro or Xpand²).
- 3 Configure the Click/Countoff options, and be sure to select the port for the MIDI device or instrument plug-in from the Output pop-up menu (see “Click Options” on page 437).
- 4 Enable Click (see “Enabling the Click” on page 436).

Enabling the Click

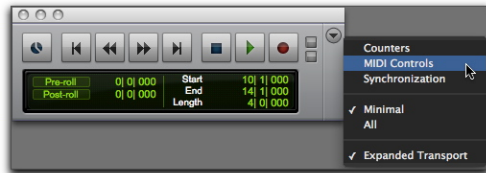
Click tracks must be enabled to be heard during playback or recording.

To enable the click from the MIDI menu:

- Select Options > Click.

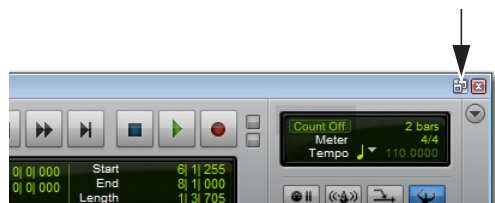
To enable the click in the Transport:

- 1 Display the MIDI controls in the Transport by doing one of the following:
 - Select View > Transport > MIDI Controls.
 - From the Transport window menu, select MIDI Controls.



Selecting MIDI Controls from the Transport window menu

- Control-click (Windows) or Command-click (Mac) the Expand/Collapse “+” button in the Transport window to display the MIDI controls.
- Alt-click (Windows) or Option-click (Mac) the Expand/Collapse “+” button in the Transport window to display the MIDI controls and the Counters.



Expand/Collapse “+” button, Transport Window with MIDI Controls

- 2 In the Transport, click the Metronome button so it is highlighted.



Metronome button, enabled

- 3 To hear the click *count off* when recording or playing, click the Count Off button in the Transport so it is highlighted.



Count Off button, enabled

Hearing the countoff before recording helps musicians to start playing at the right time and in tempo. The Count Off button in the Transport window displays the number of bars counted before the transport starts.

💡 *The countoff is ignored when Pro Tools is online and synchronized to SMPTE timecode.*

Click Options

Pro Tools provides options and controls for driving a click. The following steps are for configuring and enabling a click using the Click plug-in or MIDI.

To configure click options:

- 1 Open the Click/Countoff Options dialog by doing one of the following:
 - Choose Setup > Click/Countoff.
 - Double-click the Metronome button in the Transport window.
- 2 In the Click/Countoff Options dialog, do one of the following:
 - If using the TL Metro or Click plug-in, select None in the Output pop-up menu.
 - If playing a click using MIDI, select the port number (device) and channel for the click from the Output pop-up menu.



Click/Countoff Options dialog

- 3 Specify the note, velocity, and duration for the accented and unaccented notes.

💡 *If one is connected, you can also play new note values on a MIDI controller keyboard.*

When listening to the click in your Pro Tools sessions, the accented note sounds on the first beat of each measure and the unaccented note sounds on the remaining beats.

- 4 Select whether the click is heard During Play and Record, or Only During Record, or Only During Countoff.
- 5 If using a countoff, specify the number of Bars to be counted off. To hear the countoff only when recording, select that option.
- 6 Click OK.

Setting the Session Meter and Tempo

(Optional)

Setting the Session Meter

When opening a new session in Pro Tools, the meter defaults to 4/4. If you intend to record with a click in a meter other than 4/4, make sure to set the meter accordingly.

If a session's meter does not match the music you're recording, the accented clicks will not line up with what you're playing, and, as a result, the recorded material may not align with the bars and beats in the Edit window.

Meter events, which can occur anywhere within a Pro Tools session, appear in the Meter ruler. For more information on inserting and editing meter events, see "Meter Events" on page 793.

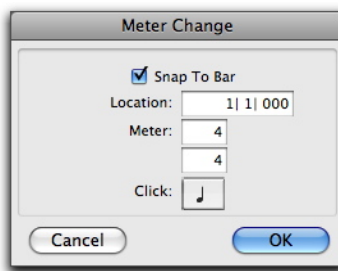
To set the meter for a session:

- 1 Double-click the Current Meter button in the Transport window.



Meter button

- 2 Enter the Meter for the session and set the Location to 1|1|000 (to ensure that the inserted meter event replaces the default).




Meter Change window

- 3 From the Click pop-up menu, select a note value for the beat. (For example, if you are in 6/8, select a dotted-quarter note).
- 4 Click OK to insert the new meter event.


Setting the Session Tempo

When opening a new session in Pro Tools, the tempo defaults to 120 BPM. If you intend to record with a click at a tempo other than 120 BPM, make sure to set the tempo accordingly.

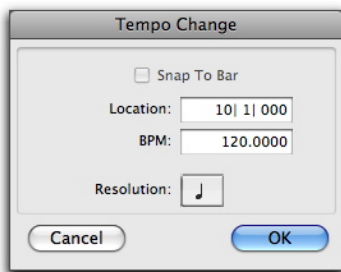
 *Tempo events, which can occur anywhere within a Pro Tools session, appear in the Tempo ruler. For more information on inserting and editing tempo events, see “Tempo” on page 771.*

To change the session tempo:

- 1 Double-click the Song Start Marker in the Edit window (see “Song Start Marker” on page 770).
- 2 Enter the BPM value for the session.

 *You can type in a specific tempo, or you can use the T key to tap in the tempo.*

- 3 Set the Location to 1|1|000 (to ensure that the inserted tempo event replaces the default).



Tempo Change window

- 4 From the Resolution pop-up menu, select the note value for the beat. (For example, if you are in 6/8, select a dotted-quarter note.)
- 5 Click OK.

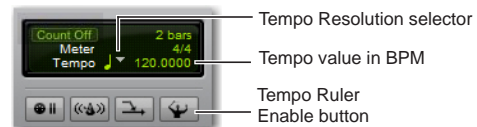
Using Manual Tempo Mode

In *Manual Tempo* mode, Pro Tools ignores tempo events in the Tempo track and instead plays back a Manual Tempo. This tempo can be set with the Tempo slider, or if you are not sure of the actual tempo, by tapping in the tempo.

While you can adjust the Manual Tempo during playback, doing so momentarily interrupts playback.

To set the Manual Tempo with the Tempo slider:

- 1 To view the MIDI controls in the Transport window, select View > Transport > MIDI Controls.
- 2 In the Transport window, click the Tempo Ruler Enable button (Conductor) button so it becomes unhighlighted. Pro Tools switches to Manual Tempo mode. In this mode, any tempo events in the Tempo track are ignored.



Manual Tempo mode

- 3 To base the BPM value on something other than the default quarter-note, click the Tempo Resolution selector and select a different note value. (For example, if you are in 6/8, select a dotted-quarter note.)
- 4 To enter a new tempo, do one of the following:
 - Drag the Tempo value up or down. For finer resolution, press Control (Windows) or Command (Mac) while dragging.
 - Click the Tempo value, type a new number, and press Enter.

To exit Manual Tempo mode and enable the Tempo track:

- Click the Tempo Ruler Enable (Conductor) button in the Transport window so it becomes highlighted.

To set the Manual Tempo by tapping:

- 1 Ensure that the MIDI controls are shown in the Transport window (select View > Transport > MIDI Controls).
- 2 In the Transport window, click the Tempo Ruler Enable (Conductor) button so it becomes unhighlighted. Pro Tools switches to Manual Tempo mode. In this mode, any tempo events in the Tempo track are ignored.
- 3 Do one of the following:
 - Click in the Tempo field so it becomes highlighted and tap the “T” key on your computer keyboard repeatedly at the new tempo.
 - If the Use MIDI to Tap Tempo option is enabled in the MIDI Preferences, click in the Tempo field so it becomes highlighted and tap in the tempo by playing a note repeatedly at the new tempo on your MIDI keyboard controller.

To compute the new tempo, Pro Tools averages the last eight (or fewer) taps to determine the correct tempo. The computed BPM value appears in the Transport window’s Tempo field.

To lock in the new tempo:

- Take Pro Tools out of Manual Tempo mode by clicking the Tempo Ruler Enable (Conductor) button, then set the default tempo for the Song Start Marker to the new tempo.

Record Modes

For recording audio, Pro Tools provides the following Record modes:

- Normal (Nondestructive)
- Destructive
- Loop
- QuickPunch
- TrackPunch (Pro Tools HD and Pro Tools with Complete Production Toolkit only)
- DestructivePunch (Pro Tools HD and Pro Tools with Complete Production Toolkit only)

To select the Record mode, do one of the following:

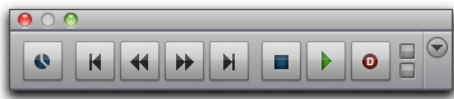
- Select the Record mode in the Options menu. If no Record mode is selected, Pro Tools is in Normal (Nondestructive) Record mode.
- Right-click the Record button in the Transport and select the Record mode from the pop-up menu.



You can also cycle through the Pro Tools record modes with the Transport stopped, by Shift-clicking (Windows) or Control-clicking (Mac) the Record button.

The Record button changes to indicate the selected Record mode as follows:

- Blank for Normal (Nondestructive)
- “D” for Destructive
- Loop symbol for Loop Record
- “P” for QuickPunch
- “T” for TrackPunch (Pro Tools HD only)
- “DP” for DestructivePunch (Pro Tools HD only)



Destructive Record mode enabled



When recording, you can preserve disk space by removing unwanted record takes (see “Clearing Unwanted Clips” on page 282) and compacting audio files (see “Compacting an Audio File” on page 607).

Normal (Nondestructive) Record Mode

In Normal, Nondestructive Record mode, Pro Tools records audio nondestructively, which means that if you record over a track’s existing clips, the audio is not erased from your hard drive. Both the new and old audio files remain on your hard drive, available as clips from the Clip List.

In Normal Record mode, the record range can be defined by selecting a range in a ruler or in a track’s playlist, or by specifying start and end points in the Transport window. If there is no selection, recording begins from the current Cursor location and continues until the Transport’s Stop button is clicked.



To set a record range by selecting within a track’s playlist, the Timeline and Edit selections must be linked. See “Linking or Unlinking Timeline and Edit Selections” on page 565.

The pre- and post-roll settings allow material to be heard up to and after the start and end points, which is useful when punch recording (see “Audio Punch Recording Over a Specified Range” on page 466).

Destructive Record Mode

In Destructive Record mode, recording over existing clips replaces the original audio permanently, which allows you to keep disk use to a minimum. However, if you have sufficient drive space, it is usually best to use Pro Tools in Nondestructive Record mode, to avoid losing any previously recorded material.

When defining the record range and setting pre- and post-roll, Destructive Record mode works the same as Normal (Nondestructive) mode.

Unlike the other record modes, it is not possible to cancel or undo record takes when using Destructive Record mode (see “Canceling a Record Take” on page 459).



In Destructive Record mode, the waveform overview is not redrawn until you stop recording.



Destructive recording is not supported with AudioSuite rendered clips with handles. You can consolidate such clips if you need to use Destructive Record mode.

Loop Record Mode

Loop Record mode lets you record take after take (nondestructively) while the same section of audio repeats. This is a convenient technique for quickly recording multiple takes of a part without losing spontaneity.

The time range that is looped and recorded—which must be at least one second in length—is defined by selecting a range in a ruler or in a track’s playlist, or by specifying start and end points in the Transport window. The pre-roll setting, if enabled, is used during the first record pass, but on each successive loop the pre- and post-roll times are ignored.



To set a record range by selecting within a track's playlist, enable the *Link Timeline and Edit Selection* option. See “*Linking or Unlinking Timeline and Edit Selections*” on page 565.

When using Loop Record mode, each successive take appears as a clip in the Clip List and each is numbered sequentially. The various takes, which are identical in length and start time, are easily auditioned and placed in the track at the correct location with the Matches pop-up menu (see “*Selecting Alternate Takes*” on page 471).



In Loop Record mode, the waveform overview is not redrawn until you stop recording.

QuickPunch

QuickPunch gives you the ability to manually and instantaneously *punch in* (initiate recording) and *punch out* (stop recording) on record-enabled audio tracks during playback by clicking the Record button in the Transport. Recording with QuickPunch is nondestructive.

When using QuickPunch, Pro Tools begins recording a new file when playback begins, automatically generating clips in that file at each punch in/out point. These clips appear in the track's playlist; and the complete audio file appears in the Clip List along with the QuickPunch created clips. Up to 200 of these “running punches” can be performed in a single pass.

Though you can punch record in the other record modes by manually specifying the record range, only QuickPunch provides instantaneous monitor switching on punch-out.



For more information on QuickPunch, see “*QuickPunch Audio Recording*” on page 501.

TrackPunch

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

TrackPunch lets individual tracks be punched in, punched out, and taken out of record enable without interrupting online recording and playback.

TrackPunch is a nondestructive recording mode. When a track is TrackPunch-enabled, Pro Tools begins recording a new file when playback begins. During playback, you may record arm or disarm, or punch in or out a combination of any or all TrackPunch enabled tracks.

TrackPunch automatically creates clips in that file at each punch-in and punch-out point. These clips appear in the track's playlist, and the complete audio file appears in the Clip List along with the TrackPunch created clips. Up to 200 of these “running punches” can be performed in a single pass.



For more information on TrackPunch, see “*TrackPunch Audio Recording*” on page 502.

DestructivePunch

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

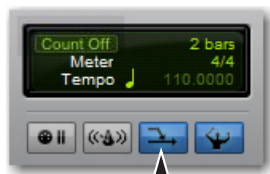
Destructive Punch is a destructive recording mode that lets you instantaneously *punch in* (start recording) and *punch out* (stop recording) on individual audio tracks during playback, while preserving a contiguous audio file on each punched track.



For more information on DestructivePunch, see “*DestructivePunch Audio Recording*” on page 506.

Record Modes and MIDI

In addition to the various record modes, there is also a MIDI Merge button in the Transport window that determines how MIDI is recorded. When enabled (*Merge* mode), recording over existing MIDI clips results in the new data being merged with the old. When the MIDI Merge button is disabled (*Replace* mode), the new material replaces the old.



MIDI Merge button, enabled

MIDI recording works the same whether using Nondestructive or Destructive Record mode. In addition, neither QuickPunch nor TrackPunch need to be enabled to punch on-the-fly with MIDI—this capability is available in Nondestructive and Destructive Record modes.

Unlike audio loop recording, the state of the MIDI Merge toggle determines whether existing material is replaced or merged.

Unless MIDI Merge is enabled, MIDI recording is destructive (though you can undo a MIDI record pass), either overwriting or adding to clip material. One exception to this rule is when Loop Record mode is enabled; in this mode, existing track clips are replaced with new clips when new material is recorded. The old clips remain intact and available from the Clip List, and from the Matches pop-up menu. In Loop Record mode, MIDI Merge has no effect, so its button is dimmed.


Configuring Default Names for Audio Files and Clips

(Optional)

Track names define new file and clip names when recording to a track (see “Naming Tracks” on page 226).

When recording to an audio track, the resulting file and clip names are based on the name of the track. For example, after recording for the first time on a track called “Electric Gtr,” an audio file is created with the name “Electric Gtr_01.” In addition, a clip appears in the Clip List with the name “Electric Gtr_01.” This clip is a whole-file clip.

Subsequent record takes on the same track are named identically, but the digits (indicating the take number) are incremented (for example, “Electric Gtr_02.”) A second set of digits (such as used in “Electric Gtr_01-01”) indicates that the clip was *auto-created* from an edit.

 *QuickPunch, TrackPunch, and Destructive Punch modes use a different method for numbering clips. For details, see “TrackPunch Audio Recording” on page 502.*

When recording MIDI tracks, a similar naming scheme is used, though with only one set of digits. For example, after recording to a track called “Synth 1,” a clip is created called “Synth 1-01.” Subsequent clips for that track, generating either from additional record takes or clip edits, are numbered sequentially (for example, “Synth 1-02”).

To rename a track:

- 1 Do one of the following:
 - In the Mix or Edit window, double-click the Track Name button for the track you want to rename.
 - In the Track List in the Mix, Edit, MIDI Editor, or Score Editor window, Right-click the track name for the track you want to rename.
- 2 In the Track Name/Comments dialog, type a new track name.
- 3 Click OK.

Names for Stereo Audio Tracks

When recording to stereo audio tracks, audio file and clip names for the left and right channels are appended with a “.L” and “.R” suffix.

Names for Multichannel Tracks (Pro Tools HD or Pro Tools with Complete Production Toolkit Only)

When recording to multichannel surround tracks, audio file and clip names for each channel are appended with the following suffixes:

Multichannel Format	File and Clip Suffixes
LCR	L, C, R
Quad	L, R, Ls, Rs
LCRS	L, C, R, S
5.0	L, C, R, Ls, Rs
5.1	L, C, R, Ls, Rs, LFE
6.0	L, C, R, Ls, Cs, Rs, LFE
6.1	L, C, R, Ls, Cs, Rs
7.0	L, C, R, Lss, Rss, Lsr, Rsr
7.1	L, C, R, Lss, Rss, Lsr, Rsr, LFE
7.0 SDDS	L, Lc, C, R, Rc, Ls, Rs
7.1 SDDS	L, Lc, C, R, Rc, Ls, Rs, LFE

Assigning Hardware I/O on a Track

Before recording to a track, you must specify the input and output signal path for the material you are recording. You will do this by assigning a hardware input (recording source) and an output bus (for monitoring recording) on the track.

To assign I/O on a track:

- 1 Assign a hardware input (recording source) by doing one of the following:
 - In the Mix window, select the corresponding hardware input for your source from the track's Input Path selector.



Input Path selector, Mix window

- In the Edit window, with I/O view enabled, select the corresponding hardware input for your source from the track's Input Path selector.



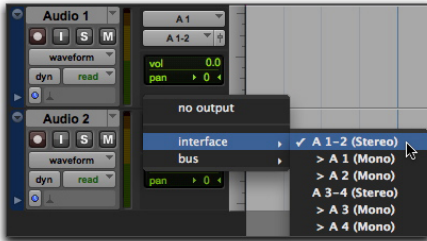
Input Path selector, Edit window

- 2 Assign an output bus (for monitoring recording) by doing one of the following:
 - In the Mix window, select the corresponding output bus for monitoring (such as "Monitor" or "A 1–2") from the track's Output Path selector.



Output Path selector, Mix window

- In the Edit window, with I/O view enabled, select the corresponding output bus for monitoring (such as “Monitor” or “A 1–2”) from the track’s Output Path selector.




Output Path selector, Edit window

Record Enabling Tracks

To record audio or MIDI to a track you must first enable the track’s Record Enable button. To record simultaneously to multiple tracks, record enable multiple audio, Instrument, or MIDI tracks.

When one or more tracks are record-enabled, click the Record button in the Transport to arm recording, and then click the Play button in the Transport to start recording.

 *MIDI and Instrument tracks can be record-enabled during playback or record. To record enable audio tracks, the Transport must be stopped, or QuickPunch, TrackPunch, or DestructivePunch must be enabled. For more information on QuickPunch, TrackPunch, and DestructivePunch, see “Record Modes” on page 440.*

To record enable an audio, MIDI, or Instrument track:

- From either the Mix or Edit window, click the track’s Record Enable button to toggle record enable on or off for the track. The track’s Record Enable button flashes red, the track’s fader is solid red, and the Track Record Enabled indicator in the Transport turns red (indicating at least one track is record-enabled).




Mix window




Edit window

Record-enabled audio track in Mix and Edit windows

 *Press Shift+R to record enable any track containing the Edit cursor on an Edit selection.*

To record enable multiple audio tracks:

- From either the Mix or Edit window, click each audio track’s Record Enable button to toggle record enable on or off for each track.

 *If Latch Record mode is not enabled, Shift-click each track’s Record Enable button to toggle record enable on or off for each track. See “Latch Record Enable Buttons Preference” on page 447.*

To record enable multiple MIDI and Instrument tracks:

- From either the Mix or Edit window, Shift-click each MIDI or Instrument track's Record Enable button to toggle record enable on or off for each track.

To record enable MIDI and Instrument tracks using the Up/Down Arrows:

- While pressing Command (Mac) or Control (Windows), press the Up/Down Arrows to record enable the previous or next MIDI or Instrument track. The previous (or next) record track is no longer record-enabled.



To keep the previous track record-enabled while enabling new tracks, press Command+Shift+Up/Down (Mac) or Control+Shift+Up/Down (Windows).

To record enable all audio tracks, or all MIDI and Instrument tracks:

- Option-click (Mac) or Alt-click (Windows) the Record Enable button to toggle record enable on or off for all audio tracks, or all Instrument and MIDI tracks.

For record-enable, Pro Tools treats MIDI and Instrument tracks as the same type. Consequently, Option-clicking (Mac) or Alt-clicking (Windows) the Record Enable button on any MIDI or Instrument track will record enable all MIDI and Instrument tracks in the session.

To record enable all selected audio tracks, or all selected MIDI and Instrument tracks:

- Option-Shift-click (Mac) or Alt-Shift-click (Windows) the Record Enable button on any selected audio, or MIDI or Instrument track to toggle record enable on or off for all selected audio, or MIDI and Instrument tracks.



Record enabling a track that is part of a Mix Group does not record enable the other tracks in the Group. To record enable all tracks in a group, click directly to the left of the group's name in the Group List to select all tracks in the group, and then Option-Shift-click (Mac) or Alt-Shift-click (Windows) the Record Enable button of one of the tracks to record enable the selected tracks.

Latch Record Enable Buttons Preference

When the Latch Record Enable Buttons option is selected in the Operation Preferences, you can record enable additional audio tracks by clicking their Record Enable buttons. Previously record-enabled tracks remain enabled. The Latch Record Enable Buttons option affects audio tracks only.

When the Latch Record Enable Buttons option is deselected, record enabling a subsequent audio track disables the previously record-enabled audio track.

To enable the Latch Record Enable Buttons preference:

- 1 Choose Setup > Preferences and click the Operation tab.
- 2 Select Latch Record Enable Buttons.

Record Safe Mode

Pro Tools provides a *Record Safe* mode on a per track basis that prevents tracks from being record-enabled by accident. Use Record Safe mode to protect important audio or MIDI data on a track from being recorded over.

To put an audio, MIDI, or Instrument track in Record Safe mode:

- Command-click (Mac) or Control-click (Windows) the track's Record Enable button. The Record Enable button is grayed out.

Command-click (Mac) or Control-click (Windows) again to take the track out of Record Safe mode.

To put all audio, MIDI, and Instrument tracks in Record Safe mode:

- Command-Option-click (Mac) or Control-Alt-click (Windows) the Record Enable button on any track.

Command-Option-click (Mac) or Control-Alt-click (Windows) again to take all tracks out of Record Safe mode.

To put all currently selected tracks into Record Safe mode:

- Command-Option-Shift-click (Mac) or Control-Alt-Shift-click (Windows) the Record Enable button on any of the selected tracks to toggle them in and out of Record Safe mode.

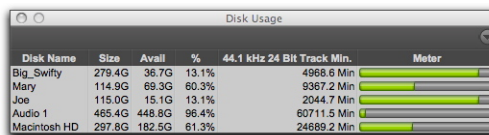
Working with Hard Drives for Recording

Monitoring Drive Space

Pro Tools lets you check how much drive space is available. The Disk Usage window shows the available drive space for each drive connected to your system as text and as a gauge display.

To monitor available space on your drive during a Pro Tools session:

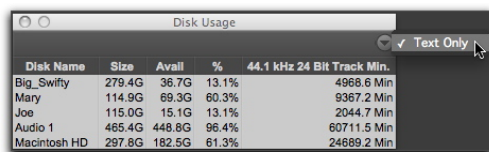
- Choose Window > Disk Space.



Disk Usage window

To display available drive space in Text Only view only:

- From the Disk Usage menu, select Text Only.



Disk Usage window, selecting Text Only view

Recording with Multiple Hard Drives

(Optional)

By default, Pro Tools records audio files to the Audio Files folder inside the session folder. If you have multiple hard drives for recording, you can use the Disk Allocation window to specify other hard drive locations to record audio files on a track-by-track basis.

Hard drives that are full do not appear in the Disk Allocation window.

To increase system performance, Pro Tools can record and play each track from a different hard drive. You can also automatically distribute any newly created tracks to multiple audio drives with Round Robin Allocation.

Navigating in the Disk Allocation Window

To resize the Disk Allocation window:

- Drag the lower-right corner of the window.

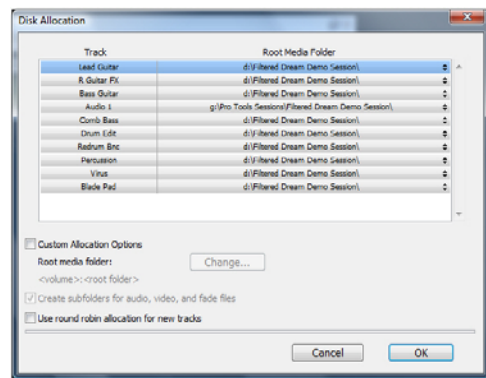
To scroll up or down in the Disk Allocation window:

- Press Page Up or Page Down.

Allocating Audio Drives in Your System

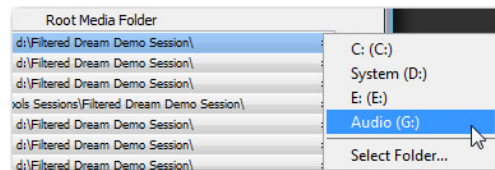
To allocate the audio drives in your system:

- 1 Choose Setup > Disk Allocation.
- 2 In the Disk Allocation window, assign a hard drive for each track by clicking in the Root Media Folder column and selecting a volume from the Disk Allocation pop-up menu.



Disk Allocation window

Only drives designated as R (Play and Record) can be selected in the Disk Allocation window. For more information, see “Performance and Transfer Volumes” on page 287.




Disk Allocation pop-up menu

A folder with the session name is created on each hard drive, containing subfolders for audio and fade files.

- To assign a track to a different hard drive, click the track and select a drive name.
 - To assign all tracks to the same hard drive, press Option (Mac) or Alt (Windows) while selecting a drive name.
 - To make a continuous selection, Shift-click a track name (in the Track column) to extend the selection to include already-selected tracks and all tracks in between.
 - To make a noncontiguous selection, Command-click (Mac) or Control-click (Windows) a track name in the Track column to extend the selection to include already-selected tracks without including tracks in-between.
- 3 To save recorded audio files to an existing folder (without creating another session folder), select Customize Allocation Options, then click Change and choose the folder. To create subfolders in this folder, select the Create Subfolders for Audio, Video, and Fade Files option.
 - 4 To automatically distribute any newly created tracks among the drives connected to your system, select the Use Round Robin Allocation for New Tracks option.

If you are using Round Robin Allocation and want audio to be recorded to your system's start-up drive, do the following:

- Open the Workspace browser (Window > Workspace) and set the Volume Designator for your system volume to R (Record and Playback). See "Workspace Volume Designation" on page 451.

 *Round Robin Allocation is not supported with partitioned hard drives.*



If you want to exclude individual, valid, mounted volumes from Round Robin Allocation passes, open the Workspace browser and make the volume safe, by designating it as P (Playback only) or T (Transfer). For more information, see "Audio and Video Volume Designators" on page 322.

5 When you are finished, click OK.

Saving Disk Allocation Settings

To save Disk Allocation settings for use with future sessions, save the session as a template. For details, see "Session Templates" on page 180.

Disk Allocation and Cross-Platform Sessions

To ensure cross-platform operation, it is required that Mac Pro Tools sessions and their associated audio files be on Mac-formatted (HFS or HFS+) drives. Windows Pro Tools sessions and their associated audio files must be on Windows-formatted NTFS drives.



See "Saving Copies of Mac Sessions to be Compatible with Windows" on page 400 and "Sharing Sessions Created on Different Computer Platforms" on page 399.

Reallocating Tracks

When opening a session where some of the previously assigned hard drives are no longer available (or do not match the current session platform), Pro Tools automatically reassigns tracks to the volume where the session file is stored. In such cases, use Disk Allocation if you need to reallocate tracks to other drives.



Reallocating tracks does not affect the previously recorded audio. Reallocating tracks only affects where new audio recording is saved.

Workspace Volume Designation

The Workspace volume designation can alter disk availability, thus affecting Disk Allocation. From the Workspace browser, you can designate volumes as Record, Playback, or Transfer. If you change a drive's designation, making it read-only (Play Only or Transfer), check the Disk Allocation window for any tracks formerly allocated to that drive. For more information, see “Audio and Video Volume Designators” on page 322.

Recording to the System Volume

Although Pro Tools lets you record to your system volume, this is generally not recommended. Performance for audio recording and playback on system drives is not as good as on non-system hard drives.

Record to system drives only when absolutely necessary, such as if your computer system has only one hard drive, or if your other hard drives are completely full.

By default, the system volume is not included in Round Robin Allocation (regardless of volume designation in the Workspace browser). To include the System Volume in Round Robin Allocations, see “Allocating Audio Drives in Your System” on page 449.




If you have a Pro Tools system with multiple drives, and you intend to record multiple tracks simultaneously, you may want to designate the System drive as a Playback only or Transfer only drive for optimal performance.


Selecting a Record Input Monitoring Mode

Pro Tools offers two modes of input monitoring: *Auto Input* and *Input Only*. These monitoring modes determine how input signals are monitored during playback, recording, or while the transport is stopped.

Auto Input Monitoring

In Auto Input mode, when session playback is stopped, Pro Tools monitors audio input. When playback is started for a punch-in, Pro Tools monitors existing track material up until the punch point. While punched in, the input signal is monitored. On punch-out, monitoring switches back to the existing track material. This is similar to the auto-switching logic found on digital and analog multitrack tape machines.

 *When in Auto Input mode, the switch back to monitoring track material on punch-out is not instantaneous.*

 *With Pro Tools HD and Pro Tools with Complete Production Toolkit, tracks are in Auto Input mode by default, and a monitoring control (TrackInput button) is provided for each track. See “Selecting Record Monitor Modes with TrackInput Monitoring” on page 453.*

Input Only Monitoring

In Input Only mode, when a track is record-enabled, Pro Tools monitors audio input only, regardless of any punch-in/out selection or state.

For Pro Tools, the Input Monitor Enabled Status indicator (in the Transport window) lights green when Input Only mode is enabled.



Input Monitor Enabled Status, Transport window

For Pro Tools HD, the indicator lights green when one or more tracks have TrackInput enabled (see “Selecting Record Monitor Modes with TrackInput Monitoring” on page 453).

Selecting a Record Monitor Mode

For record-enabled tracks to use Auto Input Monitoring:

- Select Track > Auto Input Monitoring.

For record-enabled tracks to use Input Only Monitoring:

- Select Track > Input Only Monitoring.



To toggle between Auto Input and Input Only monitoring, press Option+K (Mac) or Alt+K (Windows).

Selecting Record Monitor Modes with TrackInput Monitoring

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

TrackInput monitoring lets you toggle *individual* audio tracks between Auto Input and Input Only monitoring modes at any time, during playback, recording, while stopped, and even when a track is not record-enabled. TrackInput monitoring provides the necessary monitoring flexibility for overdubbing and mixing, and is similar to input switching on analog multitrack recorders and similar machines.

When the TrackInput button in a track is enabled (green), the track monitors audio in Input Only mode.



TrackInput Monitor button On (Input Only), in the Edit Window

When the TrackInput button in a track is disabled, the track monitors in Auto Input mode.



TrackInput Monitor button Off (Audio Input), in the Edit Window

To toggle the monitoring mode of audio tracks, do one of the following:

- To toggle individual tracks, click the TrackInput Monitor button for each track you want to toggle.
- To toggle all tracks in the session, Option-click (Mac) or Alt-click (Windows) a TrackInput Monitor button.
- To toggle all selected tracks in the session, Option-Shift-click (Mac) or Alt-Shift-click (Windows) a selected track's TrackInput Monitor button.



Press Shift+I to enable the TrackInput Monitor button for any track containing the Edit cursor on an Edit selection.

To toggle the TrackInput button states of all record-enabled tracks, do one of the following:

- To change all record-enabled tracks to Auto Input monitoring, select Track > Set Record Tracks to Auto Input.
- To change all record-enabled tracks to Input Only monitoring, select Track > Set Record Tracks to Input Only.



To toggle record-enabled tracks between Auto Input and Input Only monitoring, press Option+K (Mac) or Alt+K (Windows).

Disable “Input” When Disarming Track

When the Disable “Input” When Disarming Track (in “Stop”) option is enabled in the Operation Preferences, TrackInput monitoring is disabled whenever a track is taken out of record enable. This is useful for certain workflows, such as when you are recording on a series of tracks, one at a time.

Disabling this option allows TrackInput buttons to remain enabled when deselecting the track Record Enable button.

Setting Monitor Levels for Record and Playback

Pro Tools remembers two different fader levels for monitoring each audio track: one for when the track is record-enabled, and one for when it is *not* record-enabled.

Pro Tools keeps track of these two states for fader levels automatically. If you adjust a fader when a track is record-enabled and then turn off record enable for the track, the fader returns to its playback level.

When audio tracks are record-enabled, their volume faders in the Mix window turn red, indicating that the record monitor level is active.

Link Record and Play Faders

When the Link Record and Play Faders option is selected in the Operation Preferences, Pro Tools does not keep track of record and play levels for audio tracks. In this case, record enabling an audio track has no effect on the fader level for the track. This lets you maintain a consistent mix regardless of whether you are recording or just listening.

Reducing Monitoring Latency

There will inevitably be some audio delay, or *latency*, in the monitoring signal (even if only a few samples) due to the process of converting an analog signal to a digital signal (input) and back again (output). There may be additional latency due to mixer configurations and processing.

Avid HDX and Pro Tools|HD systems have additional latency when using host-based plug-ins (RTAS and AAX) because these plug-ins also use your computer’s host processor.

Host-based Pro Tools systems use the host processor in your computer for all audio processing, playback, and recording, so there is always a small amount of latency in the system. For example, there may be some audible delay between the incoming signal and outgoing signal when monitoring recording through Pro Tools.

With Pro Tools, latency occurs as follows:

- All Pro Tools systems can have RTAS MIDI-to-audio latency (such as when playing an RTAS virtual instrument live and monitoring the instrument’s output).
- Pro Tools systems have input-to-output monitoring latency on any record-armed tracks or Auxiliary Inputs with live inputs.
- Avid HDX and Pro Tools|HD systems have monitoring latency on tracks that have one or more host-based plug-ins.

The latency amount is related to the H/W Buffer Size setting—the larger the buffer size, the greater the latency. You can reduce the amount of monitoring latency by reducing the H/W Buffer Size setting. However, even at the smallest buffer size, there is still some latency.

In addition, reducing the buffer size limits the number of simultaneous audio tracks you can record without encountering performance errors.

While there may be times when you want a larger buffer size, such as when you have higher track counts with more plug-ins, you will generally want the smallest possible buffer size when latency is present during recording and monitoring.

If you are monitoring the recording source with an external mixer before it is routed to Pro Tools, you will not hear any latency.

To set the Hardware Buffer Size:

- 1 Choose Setup > Playback Engine.
- 2 Choose the number of samples from the H/W Buffer Size pop-up menu.
- 3 Click OK.



For more information on the H/W Buffer Size setting, see “Hardware Buffer Size” on page 66.



Computers with slower CPUs may not be able to use a H/W Buffer Size setting lower than 512 samples buffer size without encountering performance errors.

Recording with Delay Compensation

Generally, you will want to record with Delay Compensation enabled to maintain phase coherent time alignment between tracks with different DSP delays. However, you will generally want to avoid using inserts on recording tracks or tracks used for controlling the levels of cue mixes. For more information, see “Delay Compensation” on page 971.

Zero Latency Monitoring

(Mbox, Mbox 2, Mbox Mini, and Mbox 2 Mini Only)

Mbox (3rd generation), Mbox 2, Mbox Mini, and Mbox Mini 2 give you the ability to monitor your analog input signals while recording, without hearing any latency. This zero-latency analog monitoring is controlled by the front panel Mix knob, which you can use to blend and adjust the mix between the interface’s analog input and Pro Tools playback. For more information, see your system’s *User Guide*.

Low Latency Monitoring

(HD Native, 003, 003 Rack, 003 Rack+, Digi 002, Digi 002 Rack, Mbox Pro, Mbox Pro 2, and Core Audio and ASIO Interfaces with Built-in Mixers Only)

HD Native, 003, 003 Rack, 003 Rack+, Digi 002, Digi 002 Rack, Mbox Pro, and Mbox Pro 2 systems can use the Low Latency Monitoring option to record with an extremely small amount of monitoring latency, to as many tracks as each system supports.

Likewise, certain Core Audio and ASIO audio interfaces that have a built-in mixer (such as the RME Fireface or the MOTU 828) can use the Low Latency Monitoring option.

Only tracks with inputs set to a physical output (not an internal mix bus) use Low Latency Monitoring.




If your Core Audio or ASIO hardware does not have a built-in mixer, Low Latency Monitoring does not function. If you do enable Low Latency Monitoring with such hardware, monitoring will not be available for record-enabled tracks in Pro Tools.

To use Low Latency Monitoring:


- 1 Do one of the following:
 - For HD Native systems, assign each track to the selected Low Latency Monitoring Path as set in the I/O Setup Output page (see “Low Latency Monitoring” on page 99). Only tracks assigned to these outputs use Low Latency Monitoring.
 - For all other systems, assign each track output to either Output 1 or Output 2 (mono), or both (stereo). Only tracks assigned to these outputs use Low Latency Monitoring.
- 2 Record enable audio tracks by clicking their Record Enable buttons.
- 3 Select Options > Low Latency Monitoring.

When Low Latency Monitoring is enabled, any plug-ins and sends assigned to record-enabled tracks (routed to the selected Low Latency Monitoring Path with HD Native systems, or to Outputs 1–2 with all other systems) are automatically bypassed, and must remain bypassed. Also, these tracks do not register on meters for Master Faders.

 *In Pro Tools with the Complete Production Toolkit option, Low Latency Monitoring is not available in surround sessions.*

Low Latency Monitoring and Bounce To Disk

With Low Latency Monitoring enabled, only audio tracks are included with the Bounce to Disk command—Auxiliary Input and Instrument tracks are ignored. To include Auxiliary Input and Instrument tracks, disable Low Latency Monitoring before using Bounce to Disk.

 *External input cannot be recorded during a Bounce to Disk. To include external input in your bounce, it must be recorded to new audio tracks before using Bounce to Disk (see “Bounce to Disk” on page 1082).*

Chapter 21: Audio Recording

In Pro Tools, you record audio to audio tracks. Audio tracks can be mono, stereo, or multichannel as appropriate for the recording source.

When recording a mono source, record to a single, mono audio track in Pro Tools. A single, mono audio file is written to disk, and the file appears as a clip both in the track's playlist and in the Clip List.

When recording a stereo audio source, record to a single, stereo audio track in Pro Tools. A single, mono audio file is written to disk for each channel of a stereo track: one for the left channel, and one for the right channel. These files appear as a stereo clip both in the track's playlist and in the Clip List.

Recording a multichannel source to a multichannel track (Pro Tools HD and Pro Tools with Complete Production Toolkit only) is similar to recording stereo audio tracks. A single, mono audio file is written for each channel in the track, and these files appear as multichannel clips in both the track's playlist and in the Clip List (see "Multichannel Audio Tracks" on page 1109).

Before Recording

Before you start recording in Pro Tools, you need to set up your Pro Tools system, a session, and one or more tracks for recording. You will also need to configure how Pro Tools monitors the input you intend to record. For information, see Chapter 20, "Record Setup."

Basic Recording Steps

To record an audio track:

- 1 From the track's Input Path selector, select the audio Input Path you want to record (see "Assigning Hardware I/O on a Track" on page 445).
- 2 From the track's Output Path selector, select the main monitoring path.
- 3 Click the Record Enable button for the audio track. It lights red.

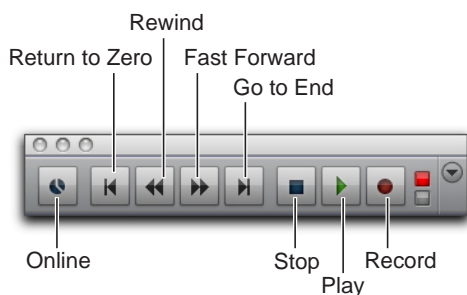


Record enabling a track in the Mix window

- 4 Adjust the output level of your sound source (instrument, mixer, or preamp). Monitor the track's meter levels in Pro Tools to ensure that levels peak within at least -6 dB to -12 dB on the input meter without triggering the clipping indicator on your audio interface.

5 Do one of the following:

- In the Mix window, adjust the track's volume and pan faders. These settings are for monitoring purposes only and do not affect the recorded material.
 - In the Output window for the track, adjust the track's Volume fader and Pan sliders. These settings are for monitoring purposes only and do not affect the recorded material. (See "Output Windows for Tracks and Sends" on page 959.)
- 6 Choose Window > Transport to display the Transport window. Click Return to Zero to go to the beginning of the session.



Transport window

- 7 Click Record in the Transport window to arm Pro Tools for recording. The Record button flashes red to indicate that Pro Tools is ready to record.
- 8 Ensure that Normal Record mode is selected (see "Record Modes" on page 440).
- 9 When you are ready to start recording, click Play or press the Spacebar.

If using Countoff, Pro Tools counts off the specified number of measures and then begins recording. See "Recording with a Click" on page 435.

10 Record your performance.

11 Click Stop in the Transport window or press the Spacebar when you are finished recording.

The newly recorded audio is written to disk and appears as an audio clip both in the track's playlist and in the Clip List.

To play back the audio track:

- 1 Click the Record Enable button for the audio track so that it is no longer record-enabled. Track volume faders now function as playback level controls.



If a record-enabled track is in Auto Input Monitor mode, you will hear "through" the input while the Transport is stopped. The track automatically switches to playback when you press play, then back to Input mode when you either stop, or punch into record. For more information, see "Auto Input Monitoring" on page 452.

- 2 To have playback start from the beginning of the session, click Return to Zero in the Transport.
- 3 To start playback, click Play in the Transport or press the Spacebar.

Undo or Cancel Audio Recording


Once you have recorded an audio track and the transport is stopped, you can undo the record take.

To undo an audio recording:

- Once the Transport has been stopped, choose Edit > Undo Record Audio.

The track's playlist is restored to its previous state and material is discarded as follows:

- When in normal Record mode, only the most recent take is discarded.
- When in Loop Record mode, all takes from each record pass are discarded.
- When using QuickPunch, TrackPunch, or DestructivePunch mode, all punches from the last recording pass are discarded.

 *If you undo a record pass during recording, Pro Tools removes any previously undone record pass from the session and lets you delete the previous record pass from your hard drive.*

If no actions are available to undo, the menu displays a grayed out Can't Undo.

Canceling a Record Take

While recording, it is possible to discard the current record take. This removes the audio (recorded up to that point) from your hard drive and deletes the clip from the track's playlist and the Clip List. When using Loop Record mode, all takes from each record pass are discarded. Canceling recording when in Destructive Record mode is prohibited.


To cancel a record take while recording:

- Press Command+Period (.) (Mac) or Control+Period (.) (Windows) before the Transport is stopped.

Recording Multiple Audio Tracks

Pro Tools can record multiple audio tracks simultaneously, up to the track recording limits of your system. To record to multiple tracks, configure and record enable each track, then record. Follow the same steps as in "Basic Recording Steps" on page 457.


For each record-enabled track, a new audio file is written to disk, and a new clip is created that appears both in the track's playlist and in the Clip List.

 *If you have a Pro Tools system with multiple drives, and you intend to record multiple tracks simultaneously, you may want to designate the System drive as a Transfer only drive for optimal performance.*


Recording Shortcuts

In addition to clicking the Record button in the Transport or Edit window to arm Pro Tools recording, you can arm and start recording with the following keyboard shortcuts:


- Press F12 to start recording immediately.

 *On Mac systems, to use F12 for recording, the Mac “Dashboard” feature must be disabled or remapped. See your User Guide for details.*

- Press Command+Spacebar (Mac) or Control+Spacebar (Windows) to start recording.

 *On Mac systems, to use Command+Spacebar for recording, the Mac “Spotlight” feature must be disabled or remapped. See your User Guide for details.*

- Press 3 on the numeric keypad (when the Numeric Keypad mode is set to Transport) to start recording.

 *To initiate recording at half speed, press Command+Shift+Spacebar (Mac) or Control+Shift+Spacebar (Windows). See “Half-Speed Recording” on page 476.*

Prime for Record Mode

When recording a large number of tracks or channels, or playing back a large number of tracks while recording, Pro Tools may take a little longer to begin recording. To avoid this delay, put Pro Tools in Prime for Record mode before beginning to record.

To enable Prime for Record mode and start recording:

- 1 Click Record in the Transport. The Record button flashes.
- 2 Do one of the following:
 - Option-click (Mac) or Alt-click (Windows) Play in the Transport to put Pro Tools in Prime for Record mode.
 - Right-click the Play button and select Prime for Record.

The Stop button lights and both the Play and Record buttons flash.

- 3 To begin recording instantaneously, click Play.
- 4 Click Stop to stop recording.



When synchronizing to timecode, use Prime for Record mode to record or play back large numbers of tracks. This decreases the time it takes to lock to timecode.

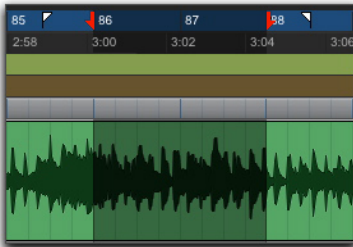
Setting Punch and Loop Points

The start and end points of a record range for punch and loop recording can be set by the following methods:

- Select a range in a track’s playlist (with Options > Link Timeline and Edit Selection enabled).
- Select a range in a Timebase ruler.
- Drag the Timeline Selection Markers in the ruler.
- Enter start and end times in the Transport window.
- Recall a Memory Location that includes an Edit selection (with Options > Link Timeline and Edit Selection enabled).

To set the record range in a track's playlist:

- 1 If you want to constrain the selection to the current Grid value, set the Edit mode to Grid.
- 2 Select Options > Link Timeline and Edit Selection.
- 3 Do one of the following:
 - With the Selector tool, select the record range in a track's playlist.



Playlist selection

- If a clip's start and end points define the record range, select the entire clip.

💡 *You can also enter a start and end point during playback. Press the Down Arrow to set the start point, and press the Up Arrow to set the end points. Note that when in Grid mode, start and end point when entered in this manner do not snap to the grid.*

To set the record range in a Timebase ruler:

- 1 If you want to constrain the selection to the current Grid value, set the Edit mode to Grid.
- 2 Select the record range in any Timebase ruler.

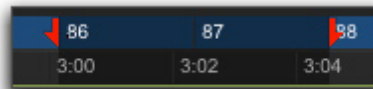


Timeline selection

💡 *If the Selector tool is not active, you do not need to manually select it. Other Edit tools (such as the Time Grabber tool) automatically turn into the Selector tool when used in Timebase rulers.*

Timeline Selection Markers

When tracks are record-enabled, Timeline Selection Markers for start and end times appear as red up and down arrows in the Main Timebase ruler. If no tracks are record-enabled, the Timeline Selection Markers are blue.

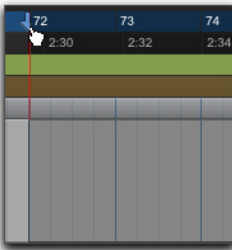


Timeline Selection Markers in the Main Timebase ruler

The Timeline Selection Markers can be moved, either separately or at the same time, to set record and play ranges.

To set the record range by dragging the Timeline Selection Markers:

- 1 If you want the Timeline Selection Markers to snap to the current Grid value, set the Edit mode to Grid
- 2 Drag the first Timeline Selection Marker (down arrow) to the start point of the range.



Dragging a Timeline Selection Marker (start time) in the Main Timebase ruler

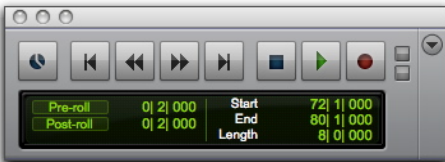
- 3 Drag the second Timeline Selection Marker (up arrow) to the end point of the range.



If the current record range is already the right length and the range needs only to be moved to a new location, Option-drag (Mac) or Alt-drag (Windows) either Timeline Selection Marker to move both to a new location (while keeping the same length).

Start, End, and Length Fields

In its Expanded view, the Transport window can display start, end, and length times, and pre- and post-roll settings. When setting a record or play range, the range is reflected in these fields.



Transport window with Start, End, and Length fields displayed

You can enter locations in the start and end fields to set the record or play range. The Timeline Selection Markers in the Main Timebase ruler are updated accordingly.

To set the record range by entering start and end times in the Transport window:


- 1 To see the start, end, and length times, do one of the following:
 - Select View > Transport > Expanded.
 - Shift-click the Expand/Collapse “+” button in the Transport window.
- 2 Do one of the following:
 - In the Transport window, click in the Start field.
 - Press Option+Forward Slash (/) (Mac) or Alt+Forward Slash (/) (Windows) on the numeric keypad to select the start field in the Transport window.
- 3 Type in the start location and press Option+Forward Slash (/) (Mac) or Alt+Forward Slash (/) (Windows) on the numeric keypad to enter the value and automatically move to the end field.
- 4 Type in the end location and press Enter to accept the value.



Use the Period (.) or Left/Right Arrow keys to move through the different time fields for Start and End. Use the Up/Down Arrow keys to increase or decrease the numerical values.

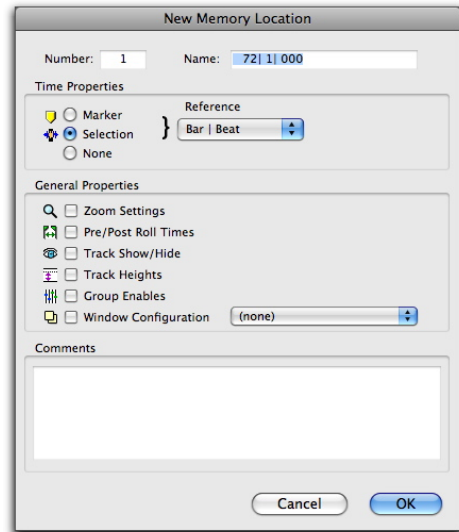
Memory Locations

You can store Edit selections as Memory Locations, which can also include current pre- and post-roll values.

 For more information on Memory Locations, see Chapter 36, “Memory Locations.”

To save an Edit selection with a Memory Location:

- 1 Ensure that Options > Link Timeline and Edit Selection is selected.
- 2 Set the record range by making an Edit or Timeline selection, or by entering start and end times in the Transport window.
- 3 To save the pre- and post-roll values, enable and set the pre- and post-roll amounts by entering them in the Transport window, or by dragging the Pre- and Post-Roll Flags in the ruler that represents the Main Time Scale (see “Setting Pre- and Post-Roll” on page 464).
- 4 Press Enter on the numeric keypad or click the Add Marker/Memory Location button in the Edit window.
- 5 In the New Memory Location dialog, set Time Properties to Selection, and if saving pre- and post-roll values, select the Pre/Post Roll Times option in the General Properties section.

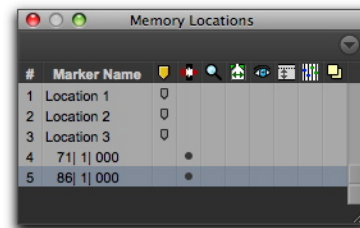


New Memory Location dialog

- 6 Type a name for the new Memory Location.
- 7 Click OK.

To recall an Edit selection with a Memory Location:

- 1 Make sure to select Options > Link Timeline and Edit Selection.
- 2 Choose Windows > Memory Locations.



Memory Locations window

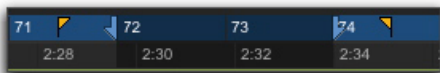
3 Do one of the following:

- In the Memory Locations window, click the name or number of the Memory Location.
- Recall the Memory Location by typing Period (.), the Memory Location number, and Period (.) again on the numeric keypad. (See “Numeric Keypad Modes” on page 31).

The start and end times and pre- and post-roll settings stored with the Memory Location are recalled.

Setting Pre- and Post-Roll

Pre- and post-roll times appear as flags in the ruler that represents the Main Time Scale. When pre- and post-roll are enabled, the flags are green, otherwise they are gray.



Green Pre- and Post-Roll Flags (enabled) in the Main Timebase ruler

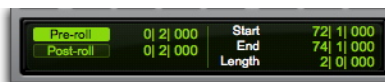
Pre- and post-roll amounts can be entered in the Transport window, set from a track’s playlist or Timebase ruler, or by recalling a Memory Location.

Setting Pre- and Post-Roll in the Transport Window

Pre- and post-roll can be enabled and set in the Transport window.

To set and enable the pre- and post-roll times in the Transport window:

- 1 Select View > Transport > Expanded.
- 2 In the Transport window, click in the pre-roll field.
- 3 Type in the pre-roll amount and press Forward Slash (/) on the numeric keypad to enter the value and automatically move to the post-roll field.
- 4 Type in the post-roll amount and press Enter to accept the new value.



Pre-roll enabled for 2 beats; Post-roll disabled

- 5 To enable either pre- or post-roll, click the appropriate button so it is highlighted.



Use the Period (.) or Left/Right Arrow keys to move through the different time fields for pre and post-roll. Use the Up/Down Arrow keys to increase or decrease the numerical values.

Setting Pre- and Post-Roll in a Playlist

You can use the Selector tool to enable and disable pre- and post-roll by clicking in a track's playlist.

To set and enable the pre- and post-roll by clicking in a playlist:

- 1 Select Options > Link Timeline and Edit Selection.
- 2 With the Selector tool, select the record range in the track's playlist.
- 3 With the Selector tool, Option-click (Mac) or Alt-click (Windows) in the track's playlist before the selection to enable the pre-roll at that location.
- 4 With the Selector tool, Option-click (Mac) or Alt-click (Windows) in the track's playlist after the selection to enable the post-roll at that location.

To disable the pre- and post-roll by clicking in a playlist:

- 1 With the Selector tool, Option-click (Mac) or Alt-click (Windows) in the Edit selection near the start to disable the pre-roll.
- 2 With the Selector tool, Option-click (Mac) or Alt-click (Windows) in the Edit selection near the end to disable the post-roll.



In the Timeline, you can reset the pre- and post-roll to zero. First, drag the Pre-Roll Flag to the Timeline Selection In Point, then drag the Post-Roll Flag to the Timeline Selection Out Point.

- 3 Drag the Pre-Roll Flag to the Timeline Selection In Point.
- 4 Drag the Post-Roll Flag to the Timeline Selection Out Point.

Enabling Pre/Post-Roll from the Options Menu

Pre- and post-roll (as a pair) can be enabled and disabled from the Options menu.

To enable both pre/post-roll from the Options menu:

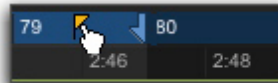
- Select Options > Pre/Post-Roll.

Dragging Pre- and Post-Roll Flags in the Timebase Ruler

The Pre- and Post-Roll Flags can be moved in the Main Timebase ruler, either separately or at the same time, to set their location.

To set the pre- and post-roll amounts by dragging in the Main Timebase ruler:

- 1 If you want the Pre- and Post-Roll flags to snap to the current Grid value, set the Edit mode to Grid.
- 2 Drag the Pre-Roll Flag to a new location in the ruler.



Dragging a Pre-Roll Flag in a Timebase ruler


- 3 Drag the Post-Roll Flag to a new location in the Timebase ruler.




To set pre- and post-roll values to the same amount, Option-drag (Mac) or Alt-drag (Windows) either the Pre- or the Post-Roll Flag in the ruler. The deselected flag will immediately reset to the same value, and will adjust accordingly as you drag the selected flag.

Audio Punch Recording Over a Specified Range

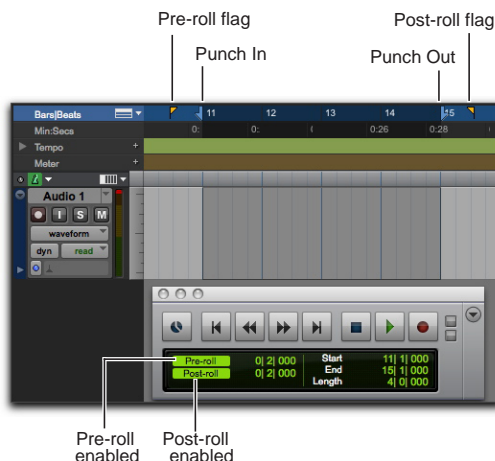
You can set Pro Tools to automatically *punch* record over a specific range in an audio track (for example, to replace a portion of a recorded track). The range's start (*punch in*) and end (*punch out*) points must be specified before recording.

 *To manually punch in and out on record-enabled audio tracks during playback, see Chapter 23, “Punch Recording Modes.”*

Though there are several ways to set record and play ranges (see “Setting Punch and Loop Points” on page 460), perhaps the easiest is to select within the track's playlist the range for recording.

 *To set a record or play range by selecting within a playlist, the Edit and Timeline selections must be linked (select Options > Link Timeline and Edit Selection).*


During the recording process, playback begins at the pre-roll time (if enabled) and proceeds to the start time (the punch-in point), where recording begins. When the end time (the punch-out point) is reached, Pro Tools automatically switches out of Record mode and continues playing through the specified amount of post-roll. This automated punch-in/out feature is a powerful and precise way of recording or re-recording on a track.



Timeline selection for punch recording with Pre-roll and Post-roll

To punch record on an audio track:

- 1 Do one of the following:
 - To record nondestructively, make sure that Options > Destructive Record is not selected.
 - If you *do* want to permanently record over the specified record range, select Options > Destructive Record.

 *If you are recording in any mode other than Destructive Record mode, punches do not permanently replace previously recorded material. If you do want to permanently record over the specified record range (and keep only the most recent take), select Options > Destructive Record.*

- 2 Record enable the track.
- 3 Select Options > Link Timeline and Edit Selection.
- 4 With the Selector tool, drag in the track's playlist or in one of the Timebase rulers until the selection encompasses the punch range (see “Setting Punch and Loop Points” on page 460).

- 5 To hear any existing track material up to the start point, or after the end point, enable and set pre- and post-roll times (see “Setting Pre- and Post-Roll” on page 464).
- 6 Click Record in the Transport to arm Pro Tools for recording.
- 7 Click Play to start recording.

Pro Tools starts recording from the punch-in (start) point. If there is any pre-roll, recording starts when the punch-in (start) point is reached. Recording continues until the punch-out (end) point is reached (unless you manually stop recording first). If post-roll is enabled, playback continues for the specified post-roll amount.

If recording nondestructively, a new audio file is written to your hard drive and a new audio clip appears both in the track and the Clip List.

If recording in Destructive Record mode, the new audio overwrites the previous material in the existing audio file and clip.


Monitoring during Punch-Ins

Pro Tools provides two monitoring modes for recording: Auto Input monitoring and Input Only monitoring (see “Selecting a Record Input Monitoring Mode” on page 452).

Recording Additional Takes


After recording to an audio track, you can record additional takes to the same track. Any of these additional takes can be used in the main playlist. For information about accessing alternate takes, see “Alternate Takes” on page 471.

Recording additional takes in Destructive Record mode overwrites previous take. To keep the audio from previous takes, record the new takes in Normal (Nondestructive) Record mode.

 *For information on audio file and clip names for new takes, see “Configuring Default Names for Audio Files and Clips” on page 443.*

To nondestructively record a new take on the same track:

- 1 Ensure that Normal Record mode is selected (see “Record Modes” on page 440).
- 2 Record enable the track.
- 3 Do one of the following:
 - To record from the beginning of the session, click Return to Zero in the Transport.
 - If Options > Link Timeline and Edit Selection is enabled, click anywhere in the track’s playlist to begin recording from that point.

 *To record a specific track range, with precise start and end points, see “Audio Punch Recording Over a Specified Range” on page 466.*

- 4 Click Record in the Transport to arm Pro Tools for recording.
- 5 Click Play to start recording.
- 6 Click Stop to stop recording.

An audio file for the new take is written to disk and appears as an audio clip both in the track’s playlist and in the Clip List.

The audio from the original take remains on your hard drive, and is still available as a clip in the Clip List.

To destructively record over a previous take:


- 1 Do one of the following:
 - Select Options > Destructive Record. When in Destructive Record mode.
 - Right-click the Record button in the Transport and select Destructive.

A “D” appears in the Record button.



Destructive Record mode enabled

- 2 Record enable the track.
- 3 Do one of the following:
 - To record from the beginning of the track, click Return to Zero in the Transport.
 - If Options > Link Timeline and Edit Selection is enabled, click anywhere in the track’s playlist to begin recording from that point.

 *To record a specific track range, with precise start and end points, see “Audio Punch Recording Over a Specified Range” on page 466.*

- 4 Click Record in the Transport to arm Pro Tools for recording.
- 5 Click Play to start recording.
- 6 When finished, click Stop to stop recording.

The audio for the new take is written to disk, permanently overwriting the original. The new material replaces the original material within the existing clip and the clip is not renamed.

Appending New Material to the End of a Track

You can also append new material to the end of a track.

To append new material to the end of a track:

- 1 Do one of the following:
 - Click the Go to End button in the Transport to locate to the end of the track (this locates the end of the session).
 - Tab to the end point of the last clip on the track.
- 2 From there, begin recording.

Pro Tools adds the new material to the end of the track. If using Destructive Record mode, the new audio is appended to the audio file and clip from the first take. In Nondestructive Record mode, a new file and clip are created.

Recording to a New Playlist

Instead of recording over existing audio clips, there is another way to nondestructively record new takes to the same track. Do this by creating a new playlist for the track, then record just as before.

Tracks can have multiple edit playlists, each of which stores a list of clips strung together in a particular order. Also, since playlists follow groups, duplicating or selecting alternate playlists for a track in an enabled group will affect all tracks in the group.

To record to a new playlist for a track:

- 1 From the track's Playlist selector, choose New.



Playlist selector


- 2 Type a name for the new playlist.
- 3 Click OK.

When a new playlist is created, its name replaces the track name. Names for new audio files and clips are based on the track name.

- 4 Record enable the track.
- 5 To start from the beginning of the session, click Return to Zero in the Transport.
- 6 Click Record in the Transport to arm Pro Tools for recording.
- 7 Click Play to start recording.
- 8 Click Stop to stop recording.

An audio file for the new take is written to disk and appears as an audio clip both in the track's new playlist and in the Clip List.

Selecting a previous playlist from track's Playlist selector recalls its clips as they previously appeared in the track. At any time, all clips from all playlists are available in the Clip List, and can be mixed and matched between playlists and tracks.

 For more information on playlists and playlist editing, see "Playlists" on page 629.


Loop Recording Audio

Pro Tools provides a loop recording feature that lets you record take after take while the same section of audio repeats over and over. This is a convenient technique for quickly recording multiple takes of a part without losing spontaneity.

When loop recording, you must first specify the start and end points for the loop. Though there are several ways to set record and play ranges (see "Setting Punch and Loop Points" on page 460), the easiest is to select the range to be looped in the track's playlist (ensure that Options > Link Timeline and Edit Selection is selected).

The pre-roll setting, if enabled, is used only during the first record pass. Pre- and post-roll times are ignored on each successive loop. To compensate for this, you may want to make the loop range slightly longer. Later, you can trim back the recorded takes to the proper length with the Trim tool (see "Using the Trim Tools" on page 549).

When loop recording audio, Pro Tools creates a single audio file that includes all takes. Takes appear as individual clips in the Clip List and are numbered sequentially. Once you stop recording, you can audition any of the recorded takes.

 *To use alternate takes created with Loop Record in other sessions (such as when using Import Session Data), export clip definitions (see "Exporting Clip Definitions" on page 351). If clip definitions are not exported, alternate takes created with Loop Record will be inaccessible when imported into another session.*

To loop record an audio track:

- 1 Do one of the following:
 - Select Options > Loop Record. When Loop Record mode is enabled, a loop symbol appears in the Record button.
 - Right-click the Record button in the Transport and select Loop.



Loop Recording enabled

- 2 Record enable the audio track by clicking its Record Enable button.
- 3 Select Options > Link Timeline and Edit Selection.
- 4 With the Selector tool, select the loop range on the track. For other methods of setting the record range, see “Setting Punch and Loop Points” on page 460.
- 5 To hear track material up to the start point of the loop, enable pre-roll and set the pre-roll time (see “Setting Pre- and Post-Roll” on page 464).
- 6 Click Record in the Transport to arm Pro Tools for recording.
- 7 Click Play to start recording.

The Record button flashes during the pre-roll. When the start point is reached, Pro Tools begins recording. When the end point is reached, Pro Tools loops back to the start time and continues recording.

- 8 To cancel all recorded takes while loop recording, press Command+Period (.) (Mac) or Control+Period (.) (Windows).
- 9 When finished, click Stop to stop recording.

If you stop recording before you reach the midpoint of the loop, Pro Tools discards that take. If you record more than half of the looped take, Pro Tools leaves the take in the track when you stop recording.

The recorded takes appear as clips in the Clip List and are numbered sequentially. The most recently recorded take appears in the active playlist on the track. For details on auditioning the different takes, see “Selecting Alternate Takes” on page 471.

Loop Playback and Audio Recording

Pro Tools ignores Loop Playback when recording. The only way to loop while recording is to enable Loop Record mode.

Automatically Create New Playlists When Loop Recording

When loop recording, Pro Tools creates a single file containing all recording passes where each recording pass is a clip in the file. On the track, only the last recording pass is present as a clip in the main playlist. All other clips (recording passes) are hidden and can only be recalled as matching alternate clips (takes). When enabled, the new Automatically Create New Playlists When Loop Recording option in the Operation Preferences page automatically copies each clip (take) to a new playlist in the track. This facilitates using Playlists view for auditioning and selecting alternate takes.

To automatically create new playlists when loop recording:

- 1 Choose Setup > Preferences and click the Operation tab.
- 2 In the Recording section, enable the Automatically Create New Playlists When Loop Recording option.

Alternate Takes

When punch recording or loop recording, Pro Tools creates matching alternate takes (clips). Pro Tools lets you exchange clips in the main playlist on tracks with matching alternate clips from other playlists associated with the same track, from other tracks, or from the Clip List. Matching alternate clips are clips that meet certain criteria, for example, clips that have the same *User Time Stamp* match (see “Matching Alternate Clips” on page 640).

Selecting Alternate Takes

After recording multiple takes with loop or punch recording, you can replace the current take in the track’s active playlist with any of the previous takes. All takes are numbered sequentially.

Selecting Alternate Takes from the Clip List

To select a take from the Clip List:

- 1 In the Edit window, select the current clip (take) with the Time Grabber tool.
- 2 Option-click (Mac) or Alt-click (Windows) different clips in the Clip List to audition them.
- 3 Control-drag (Mac) or Start-drag (Windows) the clip you want from the Clip List into the playlist.

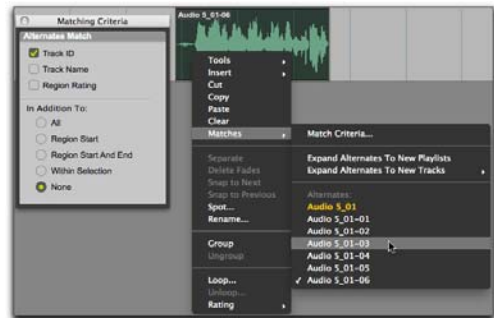
The clip replaces the previous take and snaps precisely to the correct location.

Selecting Alternate Takes on a Track

Each clip resulting from a punch or loop record pass has an identical start time (the *User Time Stamp*). You can select and audition alternate takes from the Right-click Matches submenu or the Alternate Takes pop-up menu—even during playback.

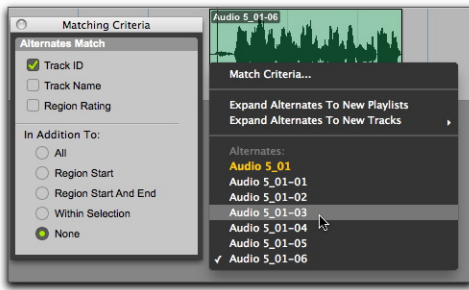
To select an alternate take:

- 1 Ensure that Track ID (or Track Name) is selected and that Clip Start is selected in the Matching Criteria window (see “Matching Criteria Window” on page 472).
- 2 Do one of the following:
 - Right-click the clip with the Selector or the Grabber tool, and select a matching alternate take from the Matches submenu in the pop-up menu.



Right-click Matches submenu

- If the take currently residing in the track is selected, Command-click (Mac) or Control-click (Windows) anywhere on the selected take with the Selector tool, and select a different take from the Alternate Takes pop-up menu.
- With the Selector tool, Command-click (Mac) or Control-click (Windows) at the precise beginning of the loop or punch range and select a different take from the Alternate Takes pop-up menu.



Alternate Takes pop-up menu

The selected matching alternate clip (take) replaces the clip in the main playlist and snaps precisely to the correct location.

One way to ensure that subsequent recording takes have the same *User Time Stamp* (and as such can be available as matching alternate clips) is to store punch and loop record selections as Memory Locations. Then, if you later need to record additional takes, recall the corresponding Memory Location.

To change the User Time Stamp of other clips so that they can be available as alternate matching clips for a specific location, use the Time Stamp command in the Clip List menu.

Matches and Multiple Tracks

If you have loop recorded on multiple tracks, and each track contains multiple takes with identical User Time Stamps, you can change all takes simultaneously.

To switch takes for multiple tracks:

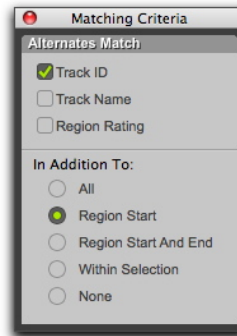
- 1 Configure the Matching Criteria window (see “Matching Criteria Window” on page 472), so that the following options are enabled:
 - Track Name
 - Selection Range

- 2 With the Selector tool, select the take range for each track you want to replace.
- 3 Do one of the following:
 - Right-click the Edit selection and select a different matching alternate take from the Matches submenu.
 - Command-click (Mac) or Control-click (Windows) the Edit selection and select a different take from the Alternates pop-up menu.

The selected take replaces the previous take and snaps precisely to the correct location on each track.

Matching Criteria Window

The Matching Criteria window lets you select the criteria for matching alternate clips. This lets you refine the list of available matching clips in the Alternate Takes pop-up menu and Clip Right-click Matches submenu.



Matching Criteria window



Matching Criteria affects MIDI as well as audio clips.

Alternates Match Options

The following Alternates Match options can be selected in any combination:

Track ID Any clips recorded to the same track are considered matching. Use this option for selecting alternate takes from loop or punch recording.

Track Name Any clips that share the same root name with the track or playlist are considered matching. For example, the Matches for a track named “Gtr.L” would show the clips “Gtr.L_01” and “Gtr.L_02-01,” but not “Guitar.L_01.”

Clip Rating Any clips that have the same Rating are considered matching. Enable this option if you have rated clips (see “Rating Clips” on page 609).

In Addition To Match Options

The following In Addition To Match options are mutually exclusive.

All Any clips that include the time location of the Edit cursor; or any clips that are either partly or fully within the current time range of the Edit selection.

Clip Start Any clips that have the same start time as the time location of the Edit cursor or Edit selection.

Clip Start and End Any clips that have the same start and end times as the Edit selection.

Selection Range Any complete clips that are entirely within the Edit selection.

None No other criteria in addition to the selected Alternates Match options are used to filter matching alternate clips.

Expanding Alternate Takes to New Playlists or Tracks

Pro Tools lets you copy alternate takes to new playlists or tracks. This is especially useful for auditioning, editing, and mixing multiple alternate takes or channels. Alternate takes are created when punch and loop recording.

Expanding Alternate Takes to New Playlists

Expanding alternate takes to new playlists readily facilitates track compositing. Once you have expanded alternate takes to new playlists on a track, you can audition and edit them in Playlists view to assemble the best takes in the main playlist.

To expand alternate takes to new playlists:

- 1 Identify the clip on the main playlist with matching alternate clips (takes).
- 2 Do one of the following:
 - Right-click the clip and choose Matches > Expand Alternates To New Playlists.
 - If the clip is selected, with the Selector tool, Command-click (Mac) or Control-click (Windows) anywhere on the selected clip and choose Matches > Expand Alternates To New Playlists.
 - If the clip is not selected, with the Selector tool, Command-click (Mac) or Control-click (Windows) at the precise beginning of the loop or punch range and choose Matches > Expand Alternates To New Playlists.

All matching alternate clips are copied to new playlists on the track. To view all playlists for the track, select Playlists view. In any track view, you can also select any available alternate playlist as the main playlist from the Playlist selector. For more information, see “Playlists View” on page 635.

Expanding Alternate Takes to New Tracks

Expanding alternate takes to new tracks readily facilitates auditioning, editing, and mixing alternate takes, each on separate tracks.

To expand alternate takes to new tracks:

- 1 Identify the clip on the main playlist with matching alternate clips (takes).
- 2 Do one of the following:
 - Right-click the clip and choose **Matches > Expand Alternates To New Tracks**.
 - If the clip is selected, with the Selector tool, Command-click (Mac) or Control-click (Windows) anywhere on the selected clip and choose **Matches > Expand Alternates To New Tracks**.
 - If the clip is not selected, with the Selector tool, Command-click (Mac) or Control-click (Windows) at the precise beginning of the loop or punch range and choose **Matches > Expand Alternates To New Tracks**.
- 3 Then choose one of the following from the **Expand Alternates To New Tracks** sub-menu:

By Track Name Names all new tracks after the source track name.

By Clip Name Names each new tracks after the corresponding original clip names that you see in the **Matches** list.

By Track and Clip Name Names all new tracks after the source track name, but with the corresponding original clip names in parenthesis.

All matching alternate clips are copied to new tracks.

Recording from a Digital Source

If you plan to use a DAT player, digital-output CD recorder, or other digital device with your Pro Tools system, make sure it supports the correct digital format. For example, your Pro Tools audio interface's AES/EBU inputs and outputs should only be connected to another AES/EBU device.



For additional information on configuring your particular Pro Tools system for recording from a digital source, see your User Guide.

Avid HD Audio Interface Digital Options

The HD I/O, HD OMNI, 192 I/O, 192 Digital I/O, and 96 I/O include AES/EBU, S/PDIF, and ADAT digital options. Additionally, the HD I/O with a Digital Expansion card, 192 I/O, and 192 Digital I/O include TDIF digital I/O options. The 96i I/O includes only the S/PDIF digital option.

HD MADI includes both optical and coaxial MADI I/O (for more information, see the HD MADI Guide).

On HD I/O, HD OMNI, 192 I/O, 192 Digital I/O, or 96 I/O, Pro Tools can receive digital audio from the factory-installed Optical (ADAT) I/O at any time (if it is not set to S/PDIF). However, Pro Tools can only receive digital audio from one of its enclosure [Encl] digital sources—AES/EBU, S/PDIF, or Optical (S/PDIF)—at a time.

Enclosure digital sources come standard with Avid HD audio interfaces and are labelled on-screen as [Encl] versions, to differentiate them from digital inputs and outputs available on the Digital card in-

stalled in HD I/O or 192 I/O. For example, the AES/EBU inputs and outputs that come standard in the 192 I/O enclosure are identified as AES/EBU [Encl].

The additional digital ports on the HD I/O, 192 I/O and 192 Digital I/O are TDIF, AES/EBU, and ADAT. Pro Tools can only receive digital audio from one of these ports at a time.

However, inputs on both the HD I/O and 192 I/O enclosure I/O and Digital card can be used simultaneously. For example, on an HD I/O, it is possible to clock off a source from one of the enclosure inputs and have another digital input from the digital ports doing a sample rate conversion, thus having two digital sources.

Pro Tools Audio Interface Digital Options

003, 003 Rack, 003 Rack+, Digi 002, and Digi 002 Rack include S/PDIF and ADAT digital I/O.

Eleven Rack includes S/PDIF and AES/EBU digital I/O.

Mbox (3rd generation), Mbox 2, Mbox Pro, and Mbox Pro 2 include only the S/PDIF digital option.

All digital outputs are active at all times, so you can actually send digital audio to different digital devices simultaneously at mix time.

Recording from Digital Sources

To record from a digital source with Pro Tools:

- 1 Connect the digital output of the recording source to the appropriate digital input of your audio hardware.
- 2 If you want to start a new session with a different sample rate, do the following:
 - Choose File > New Session
 - Select the sample rate.
 - Configure the rest of the New Session dialog accordingly.
 - Click Save.
- 3 Specify the format (digital) of the inputs of the audio interface to which the digital recording source is connected:
 - Choose Setup > Hardware.
 - Choose the audio interface.
 - Select the digital format for the appropriate channel pair (such as AES/EBU or S/PDIF).



Some Pro Tools audio interfaces only have two channels that can be set for analog or digital. For example, Mbox (3rd generation) has S/PDIF L–R (Stereo) digital inputs and In 1–2 analog inputs. Mbox (3rd generation) can record through analog and digital inputs simultaneously.

- 4 For Pro Tools HD, select the appropriate Clock Source in the Session Setup window or Hardware Setup dialog.
- 5 Create a new stereo audio track.
- 6 Assign the Input Path selector for the track to the appropriate input. Since this is a digital transfer, you do not need to worry about input levels.

- 7 Assign the Output Path selector for the track to the appropriate output for monitoring (such as A 1–2).
- 8 In the Options menu, ensure that the following options are deselected: Destructive Record, Loop Record, QuickPunch, TrackPunch, and DestructivePunch.
- 9 To have recording start from the beginning of the session, click Return to Zero in the Transport.
- 10 Record enable the new audio track.
- 11 Click Record in the Transport to arm Pro Tools for recording.
- 12 Click Play to start recording.
- 13 Start playback on the recording source.
- 14 When the material from the source has finished, click Stop in the Transport.
- 15 Stop playback on the recording source.

After a Digital Transfer

(Avid HDX, HD Native, and Pro Tools|HD Systems Only)

After you have finished recording digitally, set the Clock Source pop-up menu in the Session Setup window back to Internal. Otherwise, Pro Tools will not switch back to its own internal clock and may not record or play audio properly. Failure to switch back to Internal synchronization typically results in pitch problems (fast or slow playback), clicks and pops, or DAE errors, since a DAT machine or CD Recorder that is idle can default to a different sample rate or stop outputting a sample rate clock altogether.

Half-Speed Recording

Pro Tools lets you play and record at half-speed. This capability is similar to that of a tape deck where you can record material at half-speed and then play it back at normal speed (faster and up an octave), or record material at normal speed and play it back at half-speed (slower and down an octave), for special effects.

Use half-speed recording to record difficult to play MIDI tracks or to record complex automation moves.

To record at half-speed:

- 1 Record enable the tracks you want to record at half-speed.
- 2 Click Record in the Transport to arm Pro Tools for recording.
- 3 Press Command+Shift+Spacebar (Mac) or Control+Shift+Spacebar (Windows). Recording begins and all existing track material plays at half-speed.
- 4 When you have finished recording, click Stop.



For information on Half-Speed Playback, see “Half-Speed Playback Mode” on page 424.

Chapter 22: MIDI Recording

Although recording MIDI in Pro Tools is similar to recording audio, there are some important differences:

- ◆ Unlike audio, MIDI recording is almost always destructive. See “Record Modes and MIDI” on page 443 for details.
- ◆ Unlike audio tracks, MIDI and Instrument tracks can be record-enabled during playback or recording.
- ◆ MIDI and Instrument tracks have an Input selector that determines which port on your MIDI interface (devices) and which MIDI channel is routed and recorded to the track. If the MIDI Input selector is set to All, all channels for all devices are routed to the track.
- ◆ Similar to Auxiliary Inputs, Instrument tracks have audio Input and Output selectors. These selectors are different than the Instrument track’s selectors for MIDI Input and Output and are primarily used for monitoring audio from MIDI instruments or instrument plug-ins.
- ◆ It is not necessary to use QuickPunch, TrackPunch, or DestructivePunch to punch in with MIDI or Instrument tracks. This capability is available both in Normal (Nondestructive) Record mode and Destructive Record mode.

Recording from MIDI Devices

The MIDI Inputs for record-enabled MIDI and Instrument tracks determine what MIDI data is recorded in Pro Tools. MIDI Inputs can be set to a specific device (port) and channel, or they can be set to All, where all channels for all devices are merged to the track.

MIDI and Instrument tracks in Pro Tools do not contain multiple channels and always play back on the track’s assigned MIDI output device and channel. Multiple MIDI devices and channels can be simultaneously recorded to multiple tracks.

The following Pro Tools options determine whether you can record from a MIDI controller (such as a MIDI keyboard or drum pad):

- ◆ Devices that are assigned as a MIDI Controller in the Peripherals dialog (Setup > Peripherals) are ignored when MIDI tracks are recorded. This is to avoid recording data from MIDI control surfaces (such as Command|8).
- ◆ To record and play MIDI, the device must be enabled in the MIDI Input Enable dialog. For more information, see “Enabling Input Devices” on page 478.

In addition, the following options affect how MIDI data is recorded in Pro Tools:

- ◆ The MIDI Input Filter can filter out MIDI messages that you may not want to record, such as Polyphonic Aftertouch or System Exclusive data. For more information, see “MIDI Input Filter” on page 480.
- ◆ Input Quantize, when enabled, automatically quantizes (time corrects) all MIDI notes that are recorded. For more information, see “Input Quantize” on page 480.

Enabling Input Devices

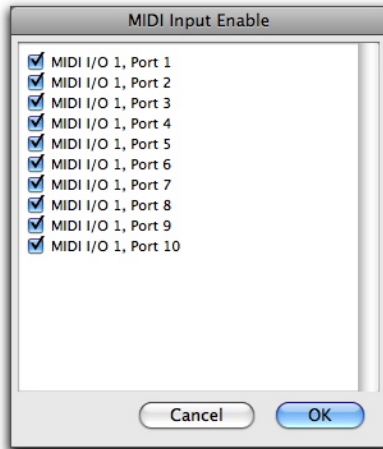
To record from a MIDI device (such as a MIDI keyboard) in Pro Tools, the device must be enabled in the MIDI Input Enable dialog. You can also use this dialog to make sure unwanted notes from certain devices, such as drum machines or arpeggiators, are not recorded.

MIDI Control Surfaces In order to use any MIDI control surfaces (such as Command|8), they must be enabled in the MIDI Input Enable dialog.

MMC In order for Pro Tools to synchronize to MIDI Machine Control (MMC), the MMC source must be enabled in the MIDI Input Enable dialog. For more information on using MMC with Pro Tools, see “Using MIDI Machine Control” on page 1153.

To enable input devices:

- 1 Choose Setup > MIDI > Input Devices.
- 2 Select the MIDI devices you want to record. Also, select any device to be used as a control surface.
- 3 Deselect any input devices you want to ignore while recording MIDI.



MIDI Input Enable dialog



Devices do not need to be selected to receive MIDI data from Pro Tools. For example, a device used exclusively as a sound module does not need to be selected in the MIDI Input Enable dialog.

- 4 Click OK.

MIDI Thru

To monitor MIDI tracks while recording, enable MIDI Thru. When enabled, Pro Tools routes MIDI from your controllers to the device and channels assigned to the currently record-enabled MIDI track.



The MIDI preference for Global MIDI Playback Offset and individual MIDI track offsets do not affect MIDI routed with MIDI Thru.



When MIDI Thru is enabled, System Exclusive (Sysex) events are echoed to the MIDI device assigned to the record-enabled track—but only if the Sysex events are smaller than 256 bytes.

To enable MIDI Thru:

- Select Options > MIDI Thru.



When using MIDI Thru, you should disable Local Control, if present, on your MIDI devices. Otherwise, your MIDI device may receive double MIDI notes, which can lead to stuck notes. If you are unsure how to disable Local Control for your instrument, see the manufacturer's documentation.

The Default Thru Instrument

In addition to any MIDI tracks that are record-enabled, you can also route MIDI to the Default Thru Instrument. This saves the extra steps of creating a MIDI track and record enabling it to hear a particular MIDI device and channel.

Unlike MIDI tracks, which only receive MIDI from the device and channel assigned to its MIDI Input selector, all incoming MIDI data is routed to the Default Thru Instrument.

If the Default Thru Instrument is assigned to a record-enabled MIDI track, Pro Tools only routes incoming MIDI to the record-enabled track.

To configure a default Thru instrument:

- 1 Choose Setup > Preferences.
- 2 Click the MIDI tab.
- 3 Do one of the following:
 - Select a specific device from the Default Thru Instrument pop-up menu to play MIDI through on that device by default.
 - Select Follows First Selected MIDI Track to have MIDI preview assignment follow MIDI track selection. When multiple MIDI tracks are selected, previewing uses the topmost MIDI track in the Edit window or the leftmost MIDI track in the Mix window.
 - To disable the Default Thru Instrument, select None.



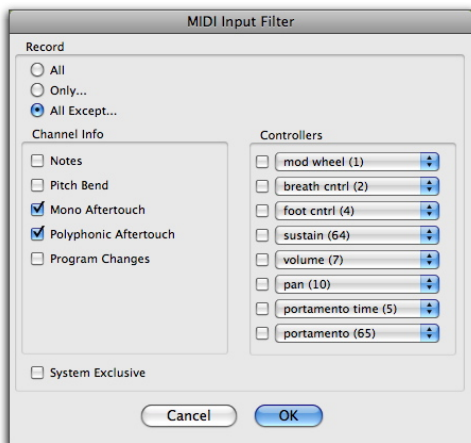
The Default Thru Follows First Selected MIDI Track Selection option also lets you play an instrument without having to create and record-enable a MIDI or Instrument track.

MIDI Input Filter

Use the MIDI Input Filter to prevent certain types of MIDI messages from being recorded. The MIDI Input Filter can be set to record All messages, Only the specified messages, or All Except the specified messages.

For example, to filter out program changes:

- 1 Choose Setup > MIDI > Input Filter.
- 2 In the MIDI Input Filter dialog, select the All Except option.
- 3 Select the option for Program Changes. Leave all other messages deselected.




MIDI Input Filter dialog

- 4 Click OK.

When using the All Except option, the selected types of MIDI messages are not recorded. Conversely, when using the Only option, only the selected types of MIDI messages are recorded.

Input Quantize


When Input Quantize is enabled in the Input Quantize Event Operations dialog (Event > Event Operations > Input Quantize), all recorded MIDI notes are quantized automatically. Quantizing MIDI on input is useful for achieving rhythmically precise MIDI recordings. However, to preserve all of the original nuance of your recorded MIDI tracks (such as *rubato* phrasing), disable this option.

 For more information on Input Quantize, see “Input Quantize Command” on page 927.

Wait for Note

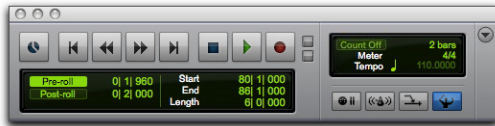
The Wait for Note button, located in the Transport window, determines how Pro Tools begins recording. When enabled, Pro Tools does not start recording until a MIDI event is received. This ensures that recording begins only when you start playing, and that the first note, or other MIDI data, is recorded precisely at the beginning of the set record range (start time).

Wait for Note can be used when recording normally, when punching in, or when loop recording. If pre-roll is enabled, it occurs after the MIDI event is received and before recording begins.

 *Wait for Note and Countoff are mutually exclusive and cannot both be enabled at the same time. If, for instance, Countoff is enabled and you click the Wait for Note button, Countoff is disabled. Furthermore, Wait for Note starts recording immediately, ignoring any specified Pre-roll.*

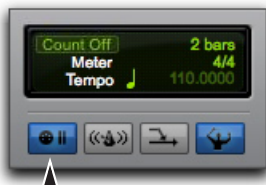
To enable Wait for Note:

- 1 To view the MIDI controls in the Transport window, select View > Transport > MIDI Controls.




Transport window with MIDI Controls

- 2 In the Transport window, click the Wait for Note button so it becomes highlighted.




Wait for Note button, enabled


 With the Operation preference for “Use F11 for Wait for Note” enabled, you can press F11 to turn on Wait for Note. (On Mac systems, the Mac “Desktop” keyboard shortcut must be disabled or remapped.)

MIDI Merge/Replace

The MIDI Merge button, located in the Transport window, determines how MIDI is recorded when overdubbing or punching in. When MIDI Merge is on (*Merge* mode), recorded MIDI is merged with existing track material. When MIDI Merge is off (*Replace* mode), existing data within the punched clip is replaced by the newly recorded material.

The MIDI Merge button can be turned on and off during playback and recording. In Loop Record mode, MIDI Merge has no effect, and the button is dimmed.

 To enable MIDI Merge with a keyboard shortcut, set the Numeric Keypad mode to Transport, and press the 9 key on the numeric keypad.

 You can also paste and merge MIDI notes using Paste Special commands. See “Special Paste Function for Automation Data” on page 1054.

To enable MIDI Merge:

- 1 To view the MIDI controls in the Transport window, select View > Transport > MIDI Controls.
- 2 In the Transport window, click the MIDI Merge button so it becomes highlighted.

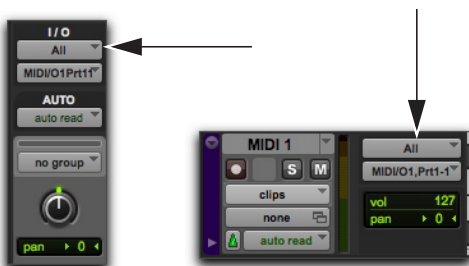


MIDI Merge button, enabled

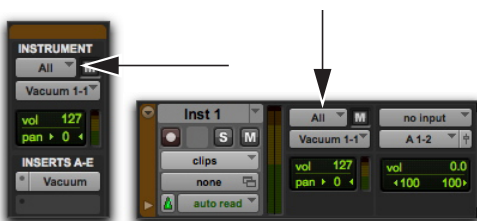
Configuring MIDI or Instrument Tracks for Recording

To configure one or more MIDI or Instrument tracks for recording:

- 1 Create a new MIDI or Instrument track, or use an existing MIDI or Instrument track.
- 2 For Instrument tracks, select View > Mix Window > Instruments or View > Edit Window > Instruments.
- 3 From the track's MIDI Input selector, select the device and channel to be recorded. (For Instrument tracks, the MIDI Input selector is available in Instruments view.)

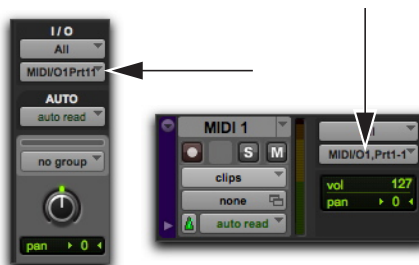


MIDI track Input selector

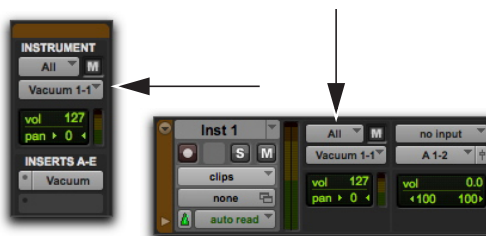


Instrument track MIDI Input selector

- 4 From the MIDI Output selector, select the device and channel for MIDI playback.




MIDI track Output selector




Instrument track MIDI Output selector

- 5 To assign multiple destinations to a single MIDI or Instrument track, Control-click (Mac) or Start-click (Windows) the MIDI Output selector and select additional channels from any device. When multiple destinations are selected for a single MIDI track, a plus sign (“+”) appears next to the first destination name in the track’s MIDI Output selector.
- 6 To assign a default program change to the track, do the following:
 - Click the Patch Select button.
 - Make the necessary selections for program and bank select.
 - Click Done.


 *Default program changes are sent whenever the track is played. For more information, see “Patch Select (Program and Bank Changes)” on page 697.*

- 7 If recording to multiple MIDI or Instrument tracks, repeat the preceding steps for each track, then continue to the next step.
- 8 To use a click, enable and configure the click, and set a default tempo and meter for the session (see “Recording with a Click” on page 435).
- 9 Enable either Wait for Note or Countoff in the Transport window.
- 10 To replace existing track material, disable MIDI Merge in the Transport window (see “MIDI Merge/Replace” on page 481).
- 11 To automatically quantize material as it is recorded, enable Input Quantize (Event > Event Operations > Input Quantize). See “Input Quantize” on page 480.
- 12 To start recording from the beginning of the session, click Return to Zero in the Transport.
- 13 Record enable the MIDI or Instrument track by clicking its Record Enable button.

 *To record enable additional MIDI and Instrument tracks, Shift-click their Record Enable buttons.*

- 14 Make sure that Options > MIDI Thru is selected, then play your MIDI controller. The MIDI device or instrument plug-in assigned to the track’s MIDI Output sounds, and the track’s meters register MIDI activity (note velocity).

You are now ready to record MIDI data to the record-enabled MIDI and Instrument tracks.

 *To monitor audio from an external MIDI instrument, select the corresponding audio Input Path for your MIDI instrument on the Instrument track (or use an Auxiliary Input track). See “Signal Routing for Monitoring and Submixing” on page 964.*

Recording MIDI and Instrument Tracks

In Pro Tools, you can record to one or more MIDI and Instrument tracks. Recording simultaneously to multiple tracks lets you:

- Record from multiple MIDI devices at the same time, such as when recording several performers.
- Record multiple channels from the same device, such as recording from a split keyboard.
- Transfer MIDI tracks from an external MIDI sequencer.



To take full advantage of the MIDI editing capabilities in Pro Tools, make sure to record tick-based MIDI tracks with a click. This ensures that recorded data aligns with the session’s bar and beat boundaries. You can also record to sample-based MIDI tracks without a click and derive the tempo and meter from the performance.



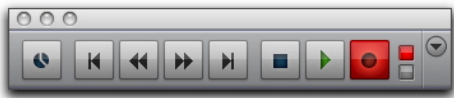
To record audio from a MIDI instrument or instrument plug-in, bus the audio output of the Instrument or Auxiliary Input track that is monitoring the instrument to an audio track. Record enable the audio track and start recording. See “Recording Audio from a MIDI Instrument” on page 492.

To record to one or more MIDI or Instrument tracks:

- 1 Configure a MIDI or Instrument track for recording (see “Configuring MIDI or Instrument Tracks for Recording” on page 482).
- 2 Ensure that the track to which you want to record is record enabled.

💡 *To record enable additional MIDI and Instrument tracks, Shift-click their Record Enable buttons.*

- 3 Ensure that Normal Record mode is selected (see “Record Modes” on page 440).
- 4 Click Record in the Transport to arm Pro Tools for recording (Record Ready mode). The Track Record Enabled indicator lights red.



Record button in Record Ready mode

- 5 Do one of the following:
 - Click Play to start recording. If using Countoff, Pro Tools counts off the specified number of measures and then begins recording.
 - If Wait for Note is enabled, do not click the Play button; recording will begin automatically as soon as you start playing (when a MIDI event is received).
- 6 Play your MIDI controller.
- 7 When you are finished playing, click Stop in the Transport to stop recording.

For each record-enabled track, a new MIDI clip is created and appears both in the playlist and in the Clip List.

 *Press F12 to start recording immediately. You can also press Command+Spacebar (Mac) or Control+Spacebar (Windows) to start recording. For more information, see “Recording Shortcuts” on page 460.*

MIDI Clips Are Created on Barlines

When recording MIDI, or when manually entering MIDI notes, the beginning and ending of MIDI clips are created on bar boundaries. This greatly facilitates arranging MIDI clips in a musically meaningful way, in whole bar lengths.

The beginning of a recorded MIDI clip always starts on the barline immediately before the first MIDI note (Note On) of the clip. Likewise, the MIDI clip ends on the barline immediately following the last note (Note Off) of the clip.

Recording Over Existing MIDI Clips

Unlike audio clips, existing MIDI clips are never overwritten even though MIDI data within clips can be overwritten. When MIDI Merge mode is disabled and recording MIDI on a track with existing clips, newly recorded MIDI data overwrites existing MIDI data within existing clips, but the existing clip boundaries remain. New MIDI clips are only created to fill the gaps between existing MIDI clip boundaries. Typically, new MIDI clips are always created on barlines. However, if existing clip boundaries are not on barlines, newly created clips are bound by the existing clips.

A *It is possible to have the Note On of a MIDI note be in one MIDI clip, and its Note Off be in a subsequent MIDI clip. It is also possible to have the clip end before the Note Off, resulting in notes that extend beyond the clip boundary. However, Note Ons can never precede the beginning of a clip.*

Playing Back Recorded MIDI

To play back recorded MIDI and Instrument tracks:

- 1 To start from the beginning of the session, click Return to Zero in the Transport.
- 2 Click Play in the Transport to begin playback.

The recorded MIDI data plays back through each track's assigned Output device (port) and channel.



To monitor audio from an external MIDI instrument, select the corresponding audio Input Path for your MIDI instrument on the Instrument track (or use an Auxiliary Input track). See “Signal Routing for Monitoring and Submixing” on page 964.

Undoing MIDI Recording

You can undo previous MIDI record takes.

To undo a MIDI recording:

- Once the Transport has been stopped, choose Edit > Undo MIDI Recording.

The track's playlist is restored to its previous state. However, the following conditions apply:

- If you punched in and out several times before stopping the Transport, only the last punch is undone.
- When using Loop Record mode, all takes from each record pass are discarded.

Canceling a Record Take

It is also possible to discard the current record take *before* the Transport is stopped.

To cancel a take while recording:

- Press Command+Period (.) (Mac) or Control+Period (.) (Windows) before the Transport is stopped.

When in Loop Record mode, all takes from each record pass are discarded.

MIDI Punch Recording Over a Specified Range

You can set Pro Tools to automatically *punch* record over a specific range in a MIDI or Instrument track. The range's start (*punch in*) and end (*punch out*) points must be specified before recording.

To punch in on a MIDI or Instrument track:

- 1 Configure a MIDI or Instrument track for recording (see “Configuring MIDI or Instrument Tracks for Recording” on page 482).
- 2 Ensure that Normal Record mode is selected (see “Record Modes” on page 440).
- 3 In the Transport window, disable Wait for Note and Countoff.
- 4 Select Options > Link Timeline and Edit Selection.
- 5 With the Selector tool, select the punch range in the track's playlist.



For other methods of setting the record range, see “Setting Punch and Loop Points” on page 460.

- 6 To hear existing track material up to the start point, or after the end point, enable and set pre- and post-roll times (see “Setting Pre- and Post-Roll” on page 464).
- 7 Record enable the track containing the previous take.
- 8 Click Record in the Transport to arm Pro Tools for recording. The Record button flashes.
- 9 Click Play to start recording.

If pre-roll is enabled, the track material leading up to the punch-in point plays. You can start playing during the pre-roll to get the “feel.” MIDI is not recorded until the start point is reached.

When the start point is reached, Pro Tools begins recording. Recording continues until the end point is reached. If post-roll is enabled, playback continues for the specified post-roll amount.

- 10 When you have finished recording, click Stop in the Transport. The newly recorded MIDI data appears in the track.

Punch Recording During Playback with MIDI

You do not have to set a record range to punch in on a MIDI or Instrument track. In fact, you can punch in and out at any time during playback. Unlike audio tracks, it is not necessary to enable QuickPunch to perform real-time punch recording.

To punch record with MIDI:

- 1 Configure a MIDI or Instrument track for recording (see “Configuring MIDI or Instrument Tracks for Recording” on page 482).
- 2 Ensure that Normal Record mode is selected (see “Record Modes” on page 440).
- 3 In the Transport window, disable Wait for Note and Countoff.
- 4 Record enable the track containing the previous take.
- 5 Click Play in the Transport to start playback.
- 6 When you reach the punch-in point, do one of the following:
 - Click Record in the Transport.
 - For Pro Tools systems that support a connected footswitch, press the footswitch at the punch-in point.



Foot switches are supported by 003 family interfaces, Digi 002, Digi 002 Rack, Mbox Pro, and Mbox 2 Pro, as well as any Pro Tools system with a supported control surface (such as C/24 or Command/8).

The Record button in the Transport and the track’s Record Enable button stop flashing and stay lit during recording.

- 7 To punch out, click Record again (or press the footswitch).

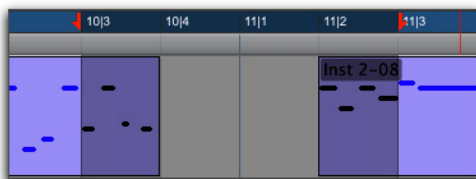
Pro Tools exits Record mode and continues playing. You can perform additional punches during the same pass.

MIDI Clips and Punch Recording

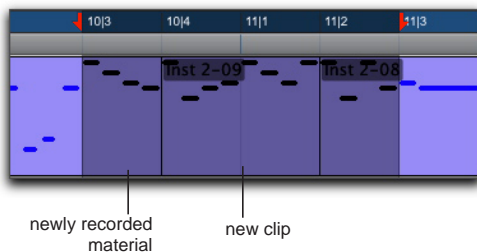
Depending on the record range, new clips may be created after punch recording.

For example, if MIDI Merge mode is disabled, recording overwrites any existing MIDI data within the record range. Since the start and end times for recording are located within both of the existing clips, newly recorded notes are written into both of the existing clips, and into a new clip created to fill the space between them.

Before punch record



After punch record



Clip added after punch record

When selecting an entire clip, or a section within a clip, before punching, no new clips are created. In this instance, only the material residing within the existing clip changes, with no new material recorded outside the clip.

Unlike audio recording, MIDI recording in this scenario is destructive. Newly recorded MIDI data overwrites existing MIDI data while leaving the existing clip boundaries intact.

If the MIDI data within a clip is altered because of a record take, the original material is either lost (unless you choose **Edit > Undo MIDI Recording**) or combined with new material (if MIDI Merge was enabled during recording). If an existing clip contains material you want to keep, use **Duplicate** to make a copy of the clip (“**Duplicating Clips**” on page 840), or duplicate the track’s playlist or record in a new playlist to keep a backup (see “**Working with Playlists**” on page 629).

Loop Recording MIDI

Loop recording with MIDI is supported by two methods:

- In Normal (Nondestructive) Record mode, enable Loop Playback and MIDI Merge for drum machine style loop recording.
- Use Loop Record mode to record multiple takes on each record pass. This is similar to loop recording audio.

Loop Recording in MIDI Merge Mode

For MIDI loop recording, use Normal (Nondestructive) Record mode with Loop Playback and MIDI Merge enabled. With this method, MIDI is recorded and merged to the same clip with each new record pass—for example, you can record hi-hats on the first pass and kick and snare on the next.



*For drum machine-style step entry, use Step Input (see “**Step Input Command**” on page 928).*

Make sure that MIDI Merge is enabled in the Transport window, otherwise (in Replace mode) each subsequent take destructively replaces the previous take.



You can record enable a different MIDI or Instrument track while loop recording. While pressing Command (Mac) or Control (Windows), use the Up/Down Arrows to record enable the previous or next MIDI or Instrument track.

To loop record in MIDI Merge mode:

- 1 Configure a MIDI or Instrument track for recording (see “Configuring MIDI or Instrument Tracks for Recording” on page 482).
- 2 Ensure that Normal Record mode is selected (see “Record Modes” on page 440).
- 3 Select Options > Loop Playback. When Loop Playback is enabled, a loop symbol appears in the Play button.



Loop Playback enabled

- 4 Record enable the MIDI or Instrument track. Ensure that no audio tracks are record-enabled.
- 5 In the Transport window, click the MIDI Merge button so it is highlighted.
- 6 Disable Wait for Note and Countoff in the Transport window.
- 7 Select Options > Link Timeline and Edit Selection.
- 8 With the Selector tool, select the loop range in the track’s playlist.



For other methods of setting the record range, see “Setting Punch and Loop Points” on page 460.

- 9 To hear track material up to the start point of the loop, enable and set the pre-roll time (see “Setting Pre- and Post-Roll” on page 464).

- 10 Click Record in the Transport to arm Pro Tools for recording. The Record button flashes.

- 11 Click Play to start recording.

The Record button flashes during pre-roll. When the start point is reached, Pro Tools begins recording. When the end point is reached, Pro Tools loops back to the start point and continues playing and recording.

- 12 Play your MIDI controller. Newly recorded MIDI data appears as a clip in the record track. On each successive take, recorded material shows up in the clip, without replacing material from previous takes.

- 13 To switch to a new record track, press Command (Mac) or Control (Windows), and press the Up/Down Arrow keys to record enable the previous or next MIDI or Instrument track.

- 14 When you are finished recording, click Stop in the Transport.

The newly recorded MIDI data appears as a MIDI clip in the track’s playlist, and in the Clip List.

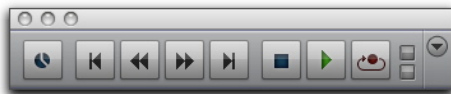
Loop Recording Multiple Takes

When recording MIDI in Loop Record mode, new clips are created each time new material is received during a record pass. This differs somewhat from loop recording audio, where Pro Tools creates a single audio file that comprises all takes, which appear as individual clips in the Clip List.

You can use MIDI loop recording to record successive takes without stopping the record process, thereby capturing your creative spontaneity. Another advantage with this method of recording MIDI, which is nondestructive, is that all existing and newly recorded clips remain intact (and available in the Clip List).

To record MIDI in Loop Record mode:


- 1 Configure a MIDI or Instrument track for recording (see “Configuring MIDI or Instrument Tracks for Recording” on page 482).
- 2 Select Options > Loop Record. When Loop Record mode is enabled, a loop symbol appears in the Record button.



Loop Recording enabled

- 3 If you have not done so already, record enable the MIDI or Instrument track by clicking its Record Enable button. Make sure no audio tracks are record-enabled.
- 4 Disable Wait for Note and Countoff in the Transport window.
- 5 Select Options > Link Timeline and Edit Selection.

- 6 With the Selector tool, select the loop range in the track’s playlist.

 *For other methods of setting the record range, see “Setting Punch and Loop Points” on page 460.*

- 7 To hear track material up to the start point of the loop, enable and set the pre-roll time (see “Setting Pre- and Post-Roll” on page 464).
- 8 Click Record in the Transport to arm Pro Tools for recording. The Record button flashes.
- 9 Click Play to start recording.

The Record button flashes during the pre-roll. When the start point is reached, Pro Tools begins recording. When the end point is reached, Pro Tools loops back to the start point and continues playing and recording.

- 10 Play your MIDI controller. A new MIDI clip containing the newly recorded material is automatically created and appears in the track’s playlist, replacing the previous clip.

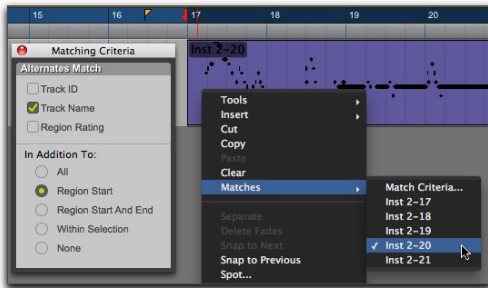
Clips are replaced (nondestructively) during subsequent record passes when new MIDI material is received.

- 11 When you are finished recording, click Stop in the Transport.

The recorded takes appear as clips in the Clip List and are numbered sequentially. The takes, which are the same length and easily interchangeable, can be selected from the Matches pop-up menu—even while the session plays or loops.

To select the various record takes:


- 1 Ensure that the Matching Criteria window is correctly configured (see “Matching Criteria Window” on page 472).
- 2 Do one of the following:
 - Right-click the clip with the Selector or Grabber tools, and select a take from the Matches sub-menu in the pop-up menu.



Selecting an alternate MIDI take


- With the Selector tool, Command-click (Mac) or Control-click (Windows) at the precise beginning of the loop or punch range and select a different take from the Alternates pop-up menu.
- If the take currently residing in the track is selected, with the Selector tool, Command-click (Mac) or Control-click (Windows) anywhere on the selected take and select a different take from the Alternates pop-up menu.

The selected take (clip) replaces the previous take and snaps precisely to the correct location.

 For more information on auditioning and managing takes, see “Selecting Alternate Takes” on page 471.

MIDI Step Input

Step Input lets you use a MIDI keyboard (or any other MIDI controller that sends MIDI note data) to enter notes individually, one step at a time. This gives you precise control over note placement, duration, and velocity. With MIDI Step Input you can also create musical passages that might be difficult to play accurately, or at faster tempos.

 For more information on Step Input, see “Step Input Command” on page 928.

Recording System Exclusive Data

Pro Tools supports recording and playing System Exclusive data (Sysex) with MIDI tracks. This allows you to use MIDI tracks in Pro Tools to store patch and configuration data for your MIDI devices, or to record real-time Sysex changes for a particular parameter of a MIDI device that cannot be controlled by a standard MIDI controller.

To record a Sysex dump at the beginning of a MIDI track:

- 1 Make sure that the MIDI OUT for the device sending the Sysex is connected to your MIDI interface’s MIDI IN.
- 2 In the MIDI Input Filter dialog, enable Only and System Exclusive.
- 3 Configure a MIDI track for recording (see “Configuring MIDI or Instrument Tracks for Recording” on page 482).
- 4 Ensure that Normal Record mode is selected (see “Record Modes” on page 440).
- 5 Record enable a MIDI track.
- 6 Enable Wait for Note in the Transport window.
- 7 To start recording from the beginning of the session, click Return to Zero in the Transport.


- 8 When you are ready to begin recording, click Record in the Transport window.

The Record, Play, and Wait for Note buttons flash, indicating that Pro Tools is waiting for MIDI data.

- 9 Initiate the Sysex transfer from the MIDI device, according to the manufacturer's instructions. Pro Tools automatically begins recording as soon as it starts to receive Sysex data.
- 10 When the Sysex transfer is complete, click Stop in the Transport.

The newly recorded MIDI data appears as a MIDI clip in the track's playlist, and in the Clip List. MIDI clips that contain System Exclusive data appear blank when the Track View is set to Clips.

To see the Sysex event blocks, which indicate the location of the data, set the Track View to Sysex (see "Clips View for MIDI and Instrument Tracks" on page 523).


 *For information on moving and copying of Sysex data, see "System Exclusive Events" on page 701.*

To send Sysex data from Pro Tools to an external MIDI device:

- 1 For the device receiving the System Exclusive data, make sure its MIDI IN is connected to the MIDI interface's MIDI OUT. Also, make sure the device is set to receive Sysex. Some devices require that memory protect be off. For more information, see the manufacturer's instructions.
- 2 Make sure that the MIDI track containing the Sysex data is not record enabled.
- 3 Click the track's MIDI Output selector and assign the device from the pop-up menu.
- 4 Configure the external MIDI device to receive Sysex data according to the manufacturer's instructions.
- 5 Click Play in the Transport to begin playback. Pro Tools begins playing and transmits the previously recorded Sysex to the assigned MIDI device.

Recording Audio from a MIDI Instrument


Typically, you will monitor the audio from MIDI instruments (both hardware and plug-ins) using Instrument and Auxiliary Input tracks. During the final mixdown, audio from Instrument and Auxiliary Input tracks can be included when using Bounce to Disk, or on a bussed recording path if recording to a new track.

 *When using instrument plug-ins, you may want to record the audio from a MIDI instrument to a new track before mixing in order to free up DSP resources.*

Recording Audio from an Instrument Plug-In

To record audio from an instrument plug-in:

- 1 Create a new Instrument track.
- 2 Insert an instrument plug-in on that track.
- 3 Do one of the following:
 - Record your MIDI performance on the Instrument track.
 - Manually enter MIDI data in the Instrument track.

 *You can also record the MIDI and audio from your performance at the same time.*

- 4 Create a new audio track with the same number of channels as the Instrument track (such as stereo).
- 5 Set the Instrument track's Audio Output Path selector to a bus (for example, Bus 1–2).
- 6 Set the audio track's Audio Input Path selector to the same bus.
- 7 Set the audio track's Audio Output Path selector to the main monitoring path).

- 8 Record enable the audio track.
- 9 Do one of the following:
 - To record from the beginning of the session, click Return To Zero in the Transport.
 - Make a Timeline selection for the record range.
- 10 Click Record in the Transport to arm Pro Tools for recording.
- 11 Click Play in the Transport to start recording.



Bus recording audio from an instrument plug-in

- 12 When your previously recorded MIDI performance is finished playing, click Stop in the Transport to stop recording.

Recording Audio from an External MIDI Instrument

You can record audio from an external MIDI instrument in one of two ways:

- By bussing audio from the output of the Instrument (or Auxiliary Input) track used to monitor the MIDI instrument to an audio track for recording.
- By setting the audio track's Audio Input Path selector to the same Audio Input Path as the Instrument (or Auxiliary Input) track used for monitoring the external MIDI instrument.

This second method avoids any additional latency associated with bussing. However, be sure to mute the Instrument (or Auxiliary Input) track used for monitoring while recording the same audio path to the audio track.

Chapter 23: Punch Recording Modes

Punch recording is used in many areas of audio production for film, video, and music.

Introduction to Punch Recording Modes

Once basic track material has been recorded, it is often necessary to replace some, but not all, of the audio that makes up each track. Punch recording lets you manually punch one or more audio tracks in and out of recording without stopping the Transport.



You do not need to use QuickPunch or any other audio punch recording mode to punch record with MIDI tracks. MIDI tracks can be punched while in Normal (Nondestructive) Record mode, and in Destructive Record mode.

Pro Tools Punch Recording Modes

Pro Tools provides three different manual punch recording modes:

QuickPunch A nondestructive Record mode that lets record-enabled tracks be punched in and punched out during playback by clicking the Record button in the Transport. QuickPunch mode is available on all systems.

TrackPunch (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) A nondestructive Record mode that lets individual tracks be punched in, punched out, and taken out of record enable without interrupting online recording and playback.

DestructivePunch (Pro Tools HD and Pro Tools with Complete Production Toolkit Only) A destructive Record mode that maintains a single continuous audio file per punch track, and lets individual tracks be punched in, punched out, and taken out of record enable without interrupting online recording and playback.



To automatically punch in and out on record-enabled audio tracks over a specific range, see “Audio Punch Recording Over a Specified Range” on page 466.

Guidelines for Punch Recording

This topic lists the basic settings and guidelines for Pro Tools punch recording, including the following:


- “Voice Requirements for Punch Recording” on page 496.
- “Delay Compensation and DestructivePunch Mode” on page 497.
- “Audio Files, Clips and Takes” on page 498.
- “Preferences for Punch Recording” on page 498 (for crossfades, as well as transport and monitor configuration settings).

Voice Requirements for Punch Recording

The maximum number of tracks that can be punched depends on the type of system you are using, as well as the number of available voices. The following topics provide guidelines for voice usage with punch recording that can be useful when managing resources during sessions.

Pro Tools (QuickPunch Only)

QuickPunch capabilities for Pro Tools depends on the total number of voices available. This will vary depending on the number of tracks and plug-ins in use in the current session (which affects the number of available voices).

 *QuickPunch uses CPU processing power, and may reduce the number of tracks and plug-ins you can use.*

Similarly, installing the Complete Production Toolkit option expands your system’s voice capabilities; this can increase the number of available voices, which then increases the number of tracks which can be punched.



For details on voice capabilities, see “Pro Tools Capabilities with Different Hardware Configurations” on page 44.

To make more voices available for punch recording:

- 1 Identify tracks that are not record-enabled, and do not need to be heard while recording.
- 2 Make those tracks inactive.

Pro Tools HD and Pro Tools with Complete Production Toolkit (QuickPunch, TrackPunch, and DestructivePunch)

When using any punch recording mode with Pro Tools HD or Pro Tools with Complete Production Toolkit, two voices are required for each record-enabled mono track. This means that you can punch record up to half the total number of voices available on your system. For example, a Pro Tools|HD Accel system configured for 192 voices can simultaneously punch record on up to 96 mono tracks with QuickPunch (or 48 stereo tracks).

If the required number of voices for the record-enabled tracks is not available when switching to QuickPunch, TrackPunch, or DestructivePunch mode, you are prompted to free up the necessary voices.

To make more voices available for punch recording:

- Identify tracks that are not record-enabled, and do not need to be heard while recording, and do any of the following:
- Set voice assignments for tracks to Off.
- Make tracks inactive.
- Group all Native (AAX and RTAS) plug-ins before DSP (AAX and TDM) plug-ins.

Voices that are in use by other tracks, but not record-enabled, may be “stolen” during punch recording as necessary.

When any punch recording mode is enabled, voice playback priority is as follows (from highest to lowest playback priority):

- Tracks with assigned voices that are not record-enabled.
- Tracks with assigned voices that *are* record-enabled.
- Tracks with Dynamically Allocated Voicing that are not record-enabled.
- Tracks with Dynamically Allocated Voicing that *are* record-enabled.

If a session has plenty of available voices, you should have no trouble punch recording tracks using Dynamically Allocated Voicing. However, if you are running out of voices, and want to ensure that a track is heard when punch recording, assign it a voice.

Dynamically Allocated Voicing

When punch recording with a Pro Tools|HD system configured for its maximum number of voices, make sure to set the voice assignment for each audio track to Dyn (for Dynamically Allocated Voicing). This ensures that Pro Tools handles the distribution of voices between each set of voices automatically. For example, for a 192-voice configured Pro Tools|HD Accel system, Dynamically Allocated Voicing distributes voices evenly across four sets of voices (1–48, 49–96, 97–144, and 145–192).

If you do not use Dynamically Allocated Voicing, the voices must be evenly distributed between all DSP engines. For example, to use QuickPunch on 32 tracks without Dynamically Allocated Voicing, tracks 1–16 must be assigned to voices 1–16 and tracks 17–32 must be assigned to voices 33–48.

Delay Compensation and DestructivePunch Mode

When using DestructivePunch to punch in on an existing recording, make sure the Delay Compensation settings are the same as when the original file was recorded. If they differ, the punched-in audio will not be time-accurate to the original recording.

- ◆ If Delay Compensation was inactive when recording the original file, it should be deactivated while using DestructivePunch.
- ◆ If Delay Compensation was active when recording the original file, it should be kept active while using DestructivePunch.

To ensure that the Delay Compensation path on record tracks remains consistent while using DestructivePunch, you need to prevent Pro Tools from using the Low Latency monitoring path when record tracks switch to Input monitoring.

To apply Delay Compensation to a track where Delay Compensation was suspended, do one of the following:

- Right-click the Track Compensation indicator on the track and select Auto Low Latency Off.
- Command-Control-click (Mac) or Control-Start-click (Windows) the Track Compensation indicator on the track.

To apply Delay Compensation to all selected tracks where Delay Compensation was suspended, do one of the following:

- Shift-Right-click the Track Compensation indicator on the track and select Auto Low Latency Off.
- Command-Control-Shift-click (Mac) or Control-Start-Shift-click (Windows) the Track Compensation indicator on the track.



For more information, see “Delay Compensation” on page 971.

Audio Files, Clips and Takes

QuickPunch and TrackPunch Modes

QuickPunch and TrackPunch are *nondestructive* recording modes. Instead of replacing audio while punching, QuickPunch and TrackPunch create new audio files for each *pass* (a pass is one cycle of starting and stopping the Transport).

Pro Tools begins recording a new audio file when playback begins, automatically generating *clips* in that file at each punch-in and punch-out point. Up to 200 of these “running punches” can be performed in a single pass. QuickPunch and TrackPunch provide instantaneous monitor switching on punch-out.

After recording with QuickPunch or TrackPunch, the new audio clips appear in the Clip List. This includes the whole-file audio clip encompassing all punches from the record pass, along with the clips derived for each punch.

Names for the punched clips are numbered consecutively starting with “01.” For example, if QuickPunch is used to punch in twice on a track called “Lead Gtr,” a clip for the parent audio file appears and is named “Lead Gtr_01,” and two clips for the punches are named “Lead Gtr_01-01” and “Lead Gtr_01-02.”

If you stop playback and record additional punches with QuickPunch (or TrackPunch), a new whole file clip is created (since one is created for each pass), and subsequent clips are named by incrementing the first two digits in the name. For example, on the second pass, the punched clips are named “Lead Gtr_02-01,” “Lead Gtr_02-02,” and so forth.

DestructivePunch Mode

DestructivePunch is a *destructive* recording mode which permanently replaces pre-existing track material with newly recorded “punch” audio.

Pro Tools only records while tracks are punched in, inserting new material and replacing audio in the track playlist.

Preferences for Punch Recording

(Crossfade, Transport, and Record Settings)

Pro Tools provides several punch-related preference settings that let you specify how crossfades, monitoring and transport functions are to perform during and after recording passes. These settings optimize Pro Tools fades, transport and track behavior for different types of tasks, including dubbing, mixing, and overdubbing.

Crossfades while Punch Recording

Pro Tools places crossfades at each in and out point, for smooth transitions between punch clips. You can specify the crossfade length for QuickPunch and TrackPunch modes (DestructivePunch uses a fixed crossfade length which cannot be changed). After punch recording is completed, all crossfades can be edited in the same manner as standard crossfades (see Chapter 28, “Fades and Crossfades”).

QuickPunch/TrackPunch Crossfade Length

Pro Tools can automatically write a crossfade for each punch point when using QuickPunch and TrackPunch. The length for these crossfades is set with the QuickPunch/TrackPunch Crossfade Length option on the Editing Preferences page.

To set the QuickPunch/TrackPunch Crossfade Length:

- 1 Choose Setup > Preferences and click the Editing tab.
- 2 Enter a new value (in msec) for the QuickPunch/TrackPunch CrossFade Length. A good general-purpose crossfade length for punches is 10 milliseconds. If you set the preference to zero, Pro Tools will not create any crossfades at the punch-in/out points.
- 3 Click OK.

If a value other than zero is specified for the QuickPunch/TrackPunch Crossfade Length, Pro Tools writes a pre-crossfade at the punch-in point (the fade occurs up to but not into the punched clip boundary), and a post-crossfade at punch-out (after the punched clip).

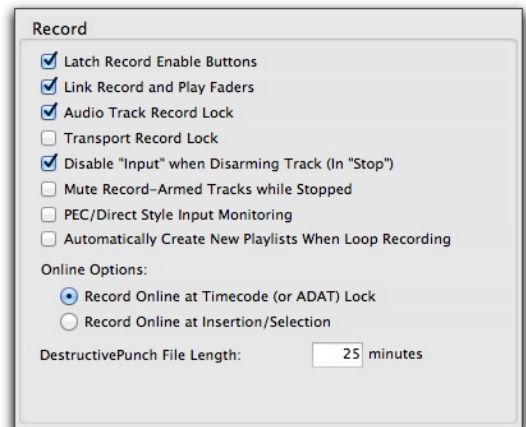
Regardless of the current QuickPunch/TrackPunch Crossfade Length setting, Pro Tools always executes a 4 millisecond “monitor only” crossfade (which is not written to disk) to avoid distracting pops or clicks that might occur as you enter and exit record mode.

DestructivePunch and Crossfades

DestructivePunch uses a fixed 10-millisecond linear crossfade at each in and out point. After punch recording is completed, crossfades can be edited in the same manner as standard crossfades (see Chapter 28, “Fades and Crossfades”).

Transport and Record Settings

Transport and Record preferences for punch recording appear on the Operation Preferences page. These preferences specify how track and Transport record status respond during, between, and after punches and passes.



TrackPunch preferences

Transport RecordLock

This setting lets the Transport Record be configured to either emulate a digital dubber, or to maintain legacy behavior for the Transport master Record.

- ◆ When not enabled, the Transport Record disarms when Pro Tools is manually stopped or stops due to a loss of timecode. This replicates legacy Pro Tools recording behavior.
- ◆ When enabled, the Transport Record remains armed when playback or recording stops. This saves having to re-arm the Transport between takes, emulating digital dubber behavior.

 *Punching out of record by pressing Record on the Transport takes the transport out of record enable.*


Destructive Recording and Transport RecordLock

As a precaution against accidentally recording over previous material, the Transport RecordLock option is automatically disabled and grayed out when Destructive record mode is enabled.

Audio Track RecordLock

This setting lets Pro Tools tracks either emulate a digital dubber, or maintain legacy behavior for track record status.


- ◆ When the Audio Track RecordLock option is enabled, the record-enabled audio tracks remain armed when playback or recording stops.
- ◆ When the Audio Track RecordLock option is not enabled, record-enabled audio tracks are taken out of record enable when Pro Tools is stopped. This prevents tracks from remaining armed from pass to pass, emulating track record behavior of a digital dubber.

 *For examples of how these settings can be applied, see “Example TrackPunch and DestructivePunch Workflows” on page 511.*


Synchronization and Track Arming Options for Punch Recording


(SYNC HD or SYNC I/O Only)

Synchronization settings for online punch recording vary depending on the type and capabilities of your Pro Tools system and other devices in your studio.

 *For basic timecode and synchronization information for Pro Tools, see Chapter 49, “Working with Synchronization.”*


The MachineControl™ option for Pro Tools HD lets you remotely arm tracks on supported 9-pin decks (or V-LAN for Transport only).

 *Choose Setup > Machine Track Arming Profiles to configure your system, and choose Window > Machine Track Arming to display the Machine Track Arming window.*

 *For information on remote track arming with MachineControl, see the Machine-Control Guide.*

QuickPunch Audio Recording

QuickPunch is available on all systems and lets you instantaneously punch in and out all record-enabled audio tracks during playback by clicking the Record button in the Transport.

 *Many Pro Tools systems also let you use a footswitch to punch in and out. See the guide that came with your Pro Tools audio interface, control surface, or ICON worksurface (Pro Tools HD and Pro Tools with Complete Production Toolkit only).*

Recording with QuickPunch

To punch record with QuickPunch:


- 1 Do one of the following:
 - Select Options > QuickPunch.
 - Right-click the Record button in the Transport and select QuickPunch.

When QuickPunch is enabled, a “P” appears in the Record button in the Transport.



QuickPunch enabled

- 2 Check or reconfigure the crossfade setting for punch recording (see “QuickPunch/TrackPunch Crossfade Length” on page 499).
- 3 Click the track Record Enable button to record enable each track on which you want to punch in.

 *If you cannot record enable tracks due to voice limitations, see “Voice Requirements for Punch Recording” on page 496.*

- 4 Prepare to record by cueing Pro Tools to an appropriate location. To use pre-roll, enable a pre-roll value in the Transport window.
- 5 Start playback by clicking Play in the Transport window.
- 6 Do one of the following:
 - When you reach the punch-in point, click Record in the Transport.
 - For Pro Tools systems that support using a connected footswitch, step on the footswitch at the punch-in point.

The Record button stops flashing and stays lit during recording.

- 7 To punch out, click Record again (or step on the footswitch).

As Pro Tools continues playing, you can perform additional punches (up to 200). When recording multiple punches during a single pass, a single audio file is recorded from which Pro Tools creates the appropriate clips.

After a QuickPunch recording pass, the punched track’s playlist in the Edit window displays the clips created by punching. You can use any of the Trim tools after punch recording to open up the head or tail of QuickPunch recorded clips, or to reveal the parent audio file that was recorded in the background. This lets you compensate for any late or missed punches.

For information on file and clip naming, see “Audio Files, Clips and Takes” on page 498.

QuickPunch with an Edit Selection

If you make an Edit selection and use QuickPunch, the following rules apply:

- If the Transport is not online, recording begins and stops whenever you click the Record button in the Transport—regardless of the selection’s start or end point.
- If the Transport is online, punch-in/out behavior is controlled by the Online Options setting on the Operation Preferences page.
 - If you select Record Online at Insertion/Selection, QuickPunch punches in and out only within the selection (or in the case of an insertion point, only after the insertion point).
 - If you select Record Online at Timecode Lock, QuickPunch disregards the selection and punches in and out whenever you want (after Pro Tools has locked to timecode).



For information about online playback with Pro Tools, see the User Guide that came with your system. For information about synchronization with TrackPunch and Destructive-Punch recording, see “Synchronization and Track Arming Options for Punch Recording” on page 500.

TrackPunch Audio Recording

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

TrackPunch mode lets you punch tracks in and out individually (one at a time) or punch multiple tracks in and out simultaneously. TrackPunch is a nondestructive punch mode which leaves previous material on disk. (To destructively replace audio on disk, see “DestructivePunch Audio Recording” on page 506).

TrackPunch Setup

Before using TrackPunch in a record pass you must configure Pro Tools, session, and track settings.

Configuring Pro Tools

To configure Pro Tools:

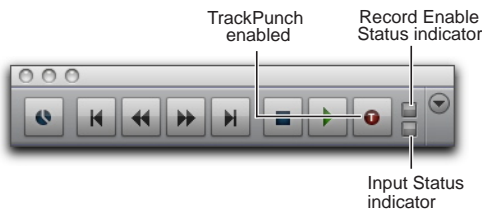
- 1 Configure tracks, voicing, and other TrackPunch settings as needed (see “Guidelines for Punch Recording” on page 496).
- 2 Make sure Pro Tools is not recording or playing back (the Transport is stopped).

Enabling TrackPunch Mode

To enable TrackPunch mode:

- Do any of the following:
- Select Options > TrackPunch.
- Right-click the Record button in the Transport, and select TrackPunch from the pop-up menu.
- Start-click (Windows) or Control-click (Mac) the Record button in the Transport to cycle through available Record modes until TrackPunch mode is selected (a “T” indicates TrackPunch mode).
- Press Command+Shift+T (Mac) or Control+Shift+T (Windows).

Transport Display of TrackPunch Status

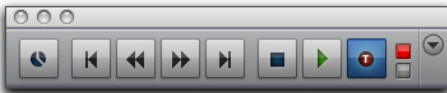


TrackPunch and TrackInput Status indicators in the Transport window

The Transport Record button indicates TrackPunch and Record status as follows:

When TrackPunch mode is enabled:

- ◆ A “T” appears in the Record button in the Transport.
- ◆ If at least one track is TrackPunch-enabled, the Record button lights solid blue.



TrackPunch mode, with at least one TrackPunch-enabled track

When TrackPunch mode is enabled and the transport is armed for recording:

- ◆ If no tracks are TrackPunch-enabled, the Record button in the Transport flashes gray and red.
- ◆ If at least one track is TrackPunch-enabled, the Record button flashes blue and red.
- ◆ If at least one TrackPunch-enabled track is also record-enabled, the Record button flashes blue and red, *and* the record LED lights.
- ◆ Whenever at least one audio track is recording, the Transport Record button lights solid red.

TrackPunch Enabling Tracks

Before each pass, you must TrackPunch enable all tracks that you intend to punch (you can TrackPunch enable tracks without record enabling them).

To TrackPunch enable one audio track:

- Control-click (Mac) or Start-click (Windows) the track’s Record Enable button.

To TrackPunch enable or disable all audio tracks:

- Option-Control-click (Mac) or Alt-Start-click (Windows) a track’s Record Enable button.

To TrackPunch enable or disable all selected audio tracks:

- Option-Control-Shift-click (Mac) or Alt-Start-Shift-click (Windows) a track’s Record Enable button.

When TrackPunch enabled, Track record enable buttons light solid blue.



Create track groups for each stem or set of tracks on which you plan to punch, then use the Group List to quickly select all tracks in the group.

Track Record Status Display

Each track's Record Enable button indicates its TrackPunch and record enable status as follows:

- When a track is TrackPunch-enabled but not record-enabled, its Record Enable button lights solid blue.



Record Enable button, enabled

- When a track is both TrackPunch-enabled and record-enabled, its Record enable button flashes blue and red.
- When a track is record-enabled only, its Record Enable button flashes red.
- While a track is recording (in any mode), its Record Enable button lights solid red.



Red (not flashing) indicates recording (all modes)

Monitoring and Levels

To complete the setup for TrackPunch:

- 1 Configure monitoring for record-enabled tracks by selecting a mode from the Track menu, or using the TrackInput button, as appropriate. Choices include:
 - Set Record Tracks to Auto Input
 - Set Record Tracks to Input Only

Selecting either monitoring mode only affects tracks that are record-enabled.

- 2 Start playback and compare levels of the input source with audio on disk. Click the TrackInput button to toggle the track source. When lit (green), the track is monitoring input. When unlit (gray), the track is monitoring from disk (see “Selecting Record Monitor Modes with Track-Input Monitoring” on page 453).
- 3 When you are satisfied with your levels, you are ready to start punch recording.

Using TrackPunch

After you have configured Pro Tools, tracks, and levels, you can record with TrackPunch in several ways.

Punching In on Individual Tracks

To punch in on individual tracks:

- 1 Make sure Pro Tools is in TrackPunch mode.
- 2 Control-click (Mac) or Start-click (Windows) the Record Enable button for each track you want to punch in, so that the track is TrackPunch-enabled only. The track's Record Enable button should light solid blue.
- 3 Click Record in the Transport to enter the TrackPunch Record Ready mode. The Record button flashes blue and red.

- 4 Click Play in the Transport to begin playback.
- 5 During playback, punch in and out on individual TrackPunch-enabled tracks by clicking their respective Record Enable buttons.
- 6 While continuing local or remote playback, do any of the following:
 - Punch in on other TrackPunch enabled tracks individually.
 - After punching out, take tracks out of record enable then record enable different TrackPunch enabled tracks.
 - Repeat as needed to punch other stems, tracks, or takes.
- 7 Stop playback. When you are finished with the record pass, track Record Enable status and transport Record Arm status follow the current Audio Track RecordLock and Transport RecordLock preference settings.

After a TrackPunch recording pass, the punched track's playlist in the Edit window displays the clips created by punching. You can use any of the Trim tools after punch recording to open up the head or tail of TrackPunch recorded clips, or to reveal the parent audio file that was recorded in the background. This lets you compensate for any late or missed punches.

For information on file and clip naming, see “Audio Files, Clips and Takes” on page 498.

Punching In on Multiple Tracks Simultaneously

To punch in on multiple tracks simultaneously:

- 1 Enable TrackPunch mode.
- 2 Click the Record Enable button on each track you want to punch in, so that the track is both TrackPunch- and Record-enabled. The track's Record Enable button flashes blue and red.
- 3 Do one of the following:
 - During playback, click Record in the Transport to punch in and out on all TrackPunch-enabled tracks simultaneously.
 - Click Record in the Transport first, then Option-Shift-click (Mac) or Alt-Shift-click (Windows) a track's Record Enable button to simultaneously punch in and out on all currently selected TrackPunch enabled tracks.
- 4 Stop playback. When you are finished with the record pass, track Record Enable status and transport Record Arm status follow the current Audio Track RecordLock and Transport RecordLock preference settings.

Start Recording on All Tracks

You can choose to begin a punch pass in record, to punch out and back in as needed.

To punch in on all tracks:

- 1 Enable TrackPunch mode (see “Transport Display of TrackPunch Status” on page 503).
- 2 Click the Record Enable button on each track you want to punch in, so that the track is both TrackPunch- and Record-enabled. The track’s Record Enable button flashes blue and red.
- 3 Click Record in the Transport to enter the TrackPunch Record Ready mode. The Record button flashes blue and red.
- 4 Click Play in the Transport to begin playback.
- 5 During playback, punch out and back in on individual TrackPunch-enabled tracks by clicking their respective Record Enable buttons.
- 6 Stop playback. When you are finished with the record pass, track Record Enable status and transport Record Arm status follow the current Audio Track RecordLock and Transport RecordLock preference settings.

DestructivePunch Audio Recording

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

DestructivePunch is a *destructive* recording mode that lets you punch in and out on during playback, while preserving a contiguous audio file on each punched track. Like TrackPunch mode, DestructivePunch mode lets you punch tracks in and out individually (one at a time) or punch multiple tracks in and out simultaneously.

Unlike QuickPunch and TrackPunch, DestructivePunch replaces audio within the target parent file. DestructivePunch is essentially a destructive version of TrackPunch mode. Where TrackPunch always records audio to a new file in the background, DestructivePunch destructively records audio directly into the original file, using a fixed 10-millisecond linear crossfade. No additional clips are created when recording in DestructivePunch mode. Up to 200 “running punches” can be performed in a track during a single DestructivePunch pass.



DestructivePunch recording is not supported with AudioSuite rendered clips with handles. You can consolidate such clips if you need to use DestructivePunch.

DestructivePunch Setup

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

Before using DestructivePunch in a record pass you must configure Pro Tools, session, and track settings.

Configuring Pro Tools for DestructivePunch


To configure Pro Tools:

- 1 Configure tracks, voicing, and other settings as needed (see “Guidelines for Punch Recording” on page 496).
- 2 Make sure Pro Tools is not recording or playing back (the Transport is stopped).

Enabling DestructivePunch Mode

To enable DestructivePunch mode:

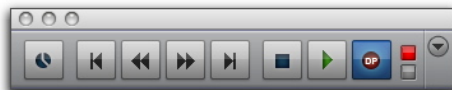
- Do one of the following:
- Select Options > DestructivePunch.
- Right-click the Record button in the Transport and select DestructivePunch.
- Control-click (Mac) or Start-click (Windows) the Record button in the Transport to cycle through available Record modes until DestructivePunch mode is indicated by “DP” in the Transport Record Enable button.

 *Power waveform view is not available in Destructive Punch mode.*

Transport Display of DestructivePunch Status

When DestructivePunch mode is enabled:

- ◆ The letters “DP” appear in the Record button in the Transport.
- ◆ If at least one track is DestructivePunch-enabled, the Record button in the Transport lights solid blue.



Transport Record Enable button with DestructivePunch mode enabled

When DestructivePunch mode is enabled and the transport is armed for recording:

- ◆ If no tracks are DestructivePunch-enabled, the Record button flashes gray and red.
- ◆ If at least one track is DestructivePunch-enabled, the Record button flashes blue and red.
- ◆ If at least one DestructivePunch-enabled track is also record enabled, the Record button flashes blue and red, *and* the record LED lights.
- ◆ Whenever at least one audio track is recording, the Record button lights solid red.

Preparing Tracks for DestructivePunch Recording

In order for a track to be enabled for DestructivePunch recording, the track must contain a contiguous audio file that meets the following requirements:

- The file must start at the beginning (sample 0) of the session.
- The File Length must be equal to or greater than the DestructivePunch File Length setting (see “DestructivePunch File Length” on page 508).

If a track does not contain a file that meets these requirements, you can do any of the following to meet the requirements:

- Move the current file in the track Timeline so that its beginning aligns with the session start.
- Use the Consolidate command to create a continuous file of the required length.
- Change the DestructivePunch File Length setting so that the current file is equal to or greater than the required length.
- Use the Prepare DPE Tracks command to consolidate audio on all DestructivePunch-enabled tracks. (See “Using the Prepare DPE Tracks Command” on page 508.)

DestructivePunch File Length

To use DestructivePunch on an audio track, the track must contain a contiguous audio file of a minimum length, which is set in the Pro Tools Operation preferences page.

To set DestructivePunch File Length:


- 1 Choose Setup > Preferences and click the Operation tab.
- 2 Type a value for DestructivePunch File Length.
- 3 Click OK.

Using the Prepare DPE Tracks Command

To prepare a track for DestructivePunch recording:

- 1 Enable DestructivePunch mode (“Enabling DestructivePunch Mode” on page 507).
- 2 Make sure the tracks you want to prepare are DestructivePunch-enabled (see “DestructivePunch Enabling Tracks without Record Enabling Them” on page 509).
- 3 Choose Options > Prepare DPE Tracks.

Pro Tools consolidates audio on all DestructivePunch-enabled tracks from the beginning of the session to the value specified in the DestructivePunch File Length preference.

 *For clips with any clip gain settings other than 0 dB, the Prepare DPE Tracks command automatically renders all clip gain and resets all clip gain to 0 dB.*

Enabling Tracks for DestructivePunch Recording

You can enable tracks for DestructivePunch without record enabling them. This lets you punch in on individual tracks at any time after starting playback by clicking their respective Record Enable buttons.

You can also simultaneously DestructivePunch enable tracks and record enable them. This lets recording begin as soon as the transport is record-armed and playback begins. (See “DestructivePunch-Enabling and Record-Enabling Tracks Simultaneously” on page 509.)

DestructivePunch Enabling Tracks without Record Enabling Them

This method lets you use the Prepare DPE Tracks command to consolidate files for DestructivePunch recording.

To DestructivePunch-enable an audio track:

- Control-click (Mac) or Start-click (Windows) the track's Record Enable button to toggle the button to solid blue.

To DestructivePunch-enable all audio tracks:

- Option-Control-click (Mac) or Alt-Start-click (Windows) a track's Record Enable button to toggle all Record Enable buttons to solid blue.

To DestructivePunch-enable all selected audio tracks:

- Control-Option-Shift-click (Mac) or Alt-Start-Shift-click (Windows) a track's Record Enable button to toggle the Record Enable buttons for the selected audio tracks solid blue.



Create a VCA group for each stem or set of tracks on which you plan to punch, and use the VCA Record Enable button to arm all tracks in the group for DestructivePunch. For more information, see “VCA Master Tracks” on page 939.

DestructivePunch-Enabling and Record-Enabling Tracks Simultaneously

This method can be used when tracks already meet the requirements for DestructivePunch recording.

To simultaneously DestructivePunch enable and record enable an audio track:

- Click the track's Record Enable button. The track's Record Enable button flashes blue and red.

To simultaneously DestructivePunch enable and record enable all audio tracks:

- Option-click (Mac) or Alt-click (Windows) a track's Record Enable button. All tracks' Record Enable buttons flash blue and red.

To simultaneously DestructivePunch enable and record enable all selected audio tracks:

- Option-Shift-click (Mac) or Alt-Shift-click (Windows) a track's Record Enable button. The Record Enable buttons for the selected audio tracks flash blue and red.

Track Record Status Display

When Pro Tools is in DestructivePunch mode, each track's Record Enable button indicates its DestructivePunch and record enable status as follows:

- When a track is both DestructivePunch-enabled and record-enabled, its Record Enable button flashes blue and red.
- When a track is DestructivePunch-enabled but not record-enabled, its Record Enable button lights solid blue.
- When a track is record-enabled only, its Record Enable button flashes red.
- While a track is recording (in any mode), its Record Enable button lights solid red.

Monitoring and Levels

To complete the setup for DestructivePunch:

- 1 Configure monitoring for record-enabled tracks by selecting a mode from the Track menu, as appropriate. Choices include:
 - Set Record Tracks to Auto Input
 - Set Record Tracks to Input Only

Selecting either monitoring mode only affects tracks that are record-enabled.

- 2 Start playback.
- 3 To compare levels of the input source with audio on disk, click the TrackInput button. When lit (green), the track is monitoring input. When unlit (gray), the track is monitoring from disk (see “Selecting Record Monitor Modes with TrackInput Monitoring” on page 453).

When you are satisfied with your levels, you are ready to start punch recording.

Using DestructivePunch

After you have configured Pro Tools, tracks, and levels, you can use DestructivePunch to record in several ways.

Punching In On Single Tracks

To punch in on single tracks:

- 1 Enable DestructivePunch mode (“Enabling DestructivePunch Mode” on page 507).
- 2 Control-click (Mac) or Start-click (Windows) the Record Enable button for each track you want to punch in, so that the track is DestructivePunch-enabled only. The track’s Record Enable button lights solid blue.

- 3 Click Record in the Transport to enter Record Ready mode. The Record Enable button flashes blue and red.
- 4 Click Play in the Transport to begin playback.
- 5 During playback, punch in and out on individual DestructivePunch-enabled tracks by clicking their Record Enable buttons.
- 6 Stop playback. When you are finished with the record pass, track Record Enable status and transport Record Arm status follow the current Audio Track RecordLock and Transport RecordLock preference settings.

Punching In on Multiple Tracks

To punch in on multiple tracks simultaneously:

- 1 Enable DestructivePunch mode (“Enabling DestructivePunch Mode” on page 507).
- 2 Click the Record Enable button on each track you want to punch in, so that the track is both DestructivePunch-enabled and Record-enabled. Each track’s Record Enable button flashes blue and red.
- 3 Click Play in the Transport to begin playback.
- 4 During playback, click Record in the Transport to punch in and out on all DestructivePunch-enabled tracks simultaneously.
- 5 Stop playback. When you are finished with the record pass, track Record Enable status and transport Record Arm status follow the current Audio Track RecordLock and Transport RecordLock preference settings.

Starting Recording Immediately on Multiple Tracks

To punch in on multiple tracks:

- 1 Enable DestructivePunch mode (“Enabling DestructivePunch Mode” on page 507).
- 2 Click the Record Enable button on each track you want to punch in, so that the track is both DestructivePunch-enabled and Record-enabled. Each track’s Record Enable button flashes blue and red.
- 3 Click Record in the Transport to enter Record Ready mode. The Record button flashes blue and red.
- 4 Click Play in the Transport to begin playback.
- 5 During playback, punch out and back in on individual DestructivePunch-enabled tracks by clicking their respective Record Enable buttons.
- 6 Stop playback. When you are finished with the record pass, track Record Enable status and transport Record Arm status follow the current Audio Track RecordLock and Transport RecordLock preference settings.

Example TrackPunch and DestructivePunch Workflows

TrackPunch and DestructivePunch let you use Pro Tools punch recording in many ways. For example, DestructivePunch lets Pro Tools be used as a digital dubber for film re-recording (dubbing) and mixing (see “Film Dubbing and Mixing” on page 512).



If you are not already familiar with routing, selecting, and grouping Pro Tools tracks, see Chapter 13, “Tracks” and Chapter 42, “Basic Mixing.”

Keyboard shortcuts and preference settings for recording and input monitoring provide flexibility that makes TrackPunch or DestructivePunch equally useful for the following workflows commonly performed in film, video, and music production:

- Loading dailies (see “Loading Dailies Using RecordLock” on page 513)
- Recording Foley (see “Foley Recording” on page 513)
- Tracking and overdubbing in music production and any other recording situation (see “Tracking and Overdubbing Music” on page 514)



Throughout these examples, references to TrackPunch can also be applied to DestructivePunch (just remember that TrackPunch is nondestructive, while DestructivePunch is a destructive punch mode).

Because Pro Tools can be networked, TrackPunch (and all other) audio files and whole sessions can be available for secure transfer to other systems for review, editing, and archiving.


Film Dubbing and Mixing


Film dubbing and mixing features of TrackPunch and DestructivePunch let you do the following:

- Arm and punch Pro Tools audio tracks remotely from a master synchronizer such as SoundMaster through P2 commands at any time, without having to stop playback and while maintaining timecode lock. (Requires the MachineControl option.)
- Toggle Pro Tools audio tracks between input and disk monitoring.
- Use Pro Tools as the timecode master (generating) or when slaving.
- Punch non-destructively with TrackPunch, or destructively with DestructivePunch.

A typical pre-dub session includes the following steps:

- 1 Configure synchronization between Pro Tools and other devices as appropriate.
- 2 Choose Setup > Preferences and click the Operation tab.
- 3 Select (enable) Transport RecordLock. This keeps the Transport Record armed after the transport stops.
- 4 Deselect Audio Track RecordLock. This causes the audio track record to disarm when the transport stops.

 *In Remote mode, Transport RecordLock has no effect. The synchronizer determines the behavior.*

 *In Remote mode, Audio Track RecordLock has no effect. The synchronizer determines the behavior.*

5 Do one of the following:


- Select Options > TrackPunch to enable TrackPunch mode for non-destructive punch recording.
- Select Options > DestructivePunch to enable DestructivePunch recording.

6 Create 32 new tracks

7 Assign the track inputs.

8 Group the tracks into groups of eight.

9 Click the record enable buttons in the first eight tracks to TrackPunch enable the first eight tracks (or, the group for the first pre-dub).

 *Use the Group List to quickly select all tracks in the group, and Alt-Shift-click (Windows) or Option-Shift-click (Mac) to record-enable all the tracks in the group.*

10 Assign the console paddles to the first eight-track group in the session.

11 Begin the pre-dub pass. Use the console paddles to arm Pro Tools, and to punch in and out on the first group.

12 When the first pre-dub is over and all tracks are punched out, clear all TrackPunch or DestructivePunch enabled tracks.

13 Select the next group of tracks and TrackPunch- or DestructivePunch-enable them.

14 Punch in and out on the second group of tracks.

15 Repeat the preceding steps as necessary.


Loading Dailies Using RecordLock

Dailies and similar types of transfers are comprised of multiple takes or scenes, each recorded while locked to unique time-of-day timecode. In between each take, timecode does not continue but stops completely. Because of this, the timecode on dailies and similar source material is said to be “discontinuous” (also known as broken timecode).

By default, Pro Tools drops out of recording when it goes offline due to broken timecode. However, you can change this behavior so that Pro Tools will instead remain armed, waiting to begin recording again when lock is re-established with the timecode of the next take.

To configure RecordLock for loading:

- 1 Choose Setup > Preferences and click the Operation tab.
- 2 Enable Transport RecordLock.
- 3 Enable Audio Track RecordLock.
- 4 Configure synchronization and other settings as required.
- 5 Put Pro Tools online, and start the external source player.
- 6 Whenever timecode drops out or stops, Pro Tools remains online and waits to receive new timecode. The Transport and record-enabled tracks remain record-enabled. When timecode resumes, Pro Tools begins recording to a new audio file (properly time stamped based on the incoming code).

 *Because Pro Tools has a 24-hour Timeline limit, you must use multiple sessions to load dailies if the span is more than 24 hours.*

Foley Recording

Foley recording is one of the more specialized forms of recording in film production with unique monitoring requirements. Between punches and takes, inputs must be muted while Foley artists move themselves and equipment as they progress through a scene.

TrackInput monitoring can be configured to support Foley style TrackPunch recording using the Mute Record-Armed Tracks While Stopped preference.

To configure Pro Tools for Foley-style punch record monitoring:

- 1 Choose Setup > Preferences and click the Operation tab.
- 2 Enable Mute Record-Armed Tracks While Stopped.
- 3 Configure synchronization and other settings for Pro Tools and your other devices.
- 4 Enable TrackPunch or DestructivePunch mode and proceed with punch recording.

When recording online and Mute Record-Armed Tracks While Stopped is enabled, record-enabled tracks mute when the Transport is stopped. Input can still be monitored at any time by using the TrackInput switch.

Tracking and Overdubbing Music

Modern multitrack recording requires the flexibility to “capture the moment” by allowing on-the-fly record enabling and punch recording, as provided by TrackPunch. Features of TrackPunch for all tracking, overdubbing, and punching situations include the following:

- Record enable tracks while the transport is moving.
- Punch tracks in and out using on-screen Record Enable buttons, remotely from a synchronizer, from a control surface, or using a foot switch.
- Compare and match levels using TrackInput switching.

Part V: Editing

Chapter 24: Editing Basics

Use the Edit window in Pro Tools to edit and arrange audio, video, and MIDI. Track material can be edited nondestructively and in real time during playback.

The Edit window also lets you graphically edit other data, as follows:

Editing Clips and Selections See Chapter 27, “Editing Clips and Selections.” Also, see Chapter 37, “Arranging Clips.”

Editing Fades and Crossfades See Chapter 28, “Fades and Crossfades.”

Editing Elastic Audio See Chapter 40, “Elastic Audio.”

Editing MIDI See Chapter 31, “MIDI Editing.”

Editing Automation See Chapter 44, “Automation.”

Editing Video See Chapter 51, “Working with Video in Pro Tools.”

Nondestructive Editing

The vast majority of audio editing in Pro Tools is nondestructive. Whether cutting, pasting, trimming, separating, or clearing clips, you are only performing these functions on a map of the actual media (such as audio files). The source files remain untouched. However, certain processes or tools work destructively (can permanently change audio files on your hard disk), as noted in other topics.

While editing for MIDI tracks is in some instances destructive, with a few precautions you can keep important MIDI tracks and clips safe when performing edits (see “Nondestructive MIDI Editing” on page 526).

Editing during Playback

Pro Tools lets you perform many editing tasks while the session plays. This powerful capability lets you interactively modify and edit a session, hearing the changes as you make them.



Use Loop and Dynamic Transport modes for auditioning and editing loops during playback. See “Playback Modes” on page 423.

Following are just a few examples of editing and arranging tasks that can be performed while playing back a Pro Tools session:

- Capture, separate, cut, copy, paste, and trim clips
- Place, spot, or rearrange clips
- Add fades or crossfades to audio clips
- Quantize MIDI notes and audio events
- Transpose and otherwise modify MIDI tracks
- Nudge audio or MIDI clips
- Audition different playlists
- Adjust or scale automation and MIDI continuous controller data
- Insert real-time plug-ins
- Apply Real-Time (and Rendered) Elastic Audio processing

- Process audio with an AudioSuite plug-in
- Automation editing

There are a few things that cannot be changed while Pro Tools plays, as noted in relevant topics.

Track Material

Each time you record or import audio, video, and MIDI, Pro Tools creates *clips* for the new track data, which not only indicate where the material begins and ends, but also provides visual feedback on its general character and content. When you record additional takes, or “punch in” on a specific location within a track, Pro Tools creates additional clips.

Clips are also created by cutting and pasting, resizing, separating, and re-capturing existing clips. Clips in a session are listed in the Clip List, where they can be dragged to existing tracks. A track can contain any number of clips, in any arrangement. The order and location of clips in a track define its *playlist*.

In addition to audio and MIDI clips, tracks provide automation playlists of any automation data (such as volume and pan). Automation can be recorded and edited in the Mix, Edit, and MIDI Editor windows (see Chapter 44, “Automation”).

Clip Types

There are different types of audio and MIDI clips, based on how they are created:



For information on video clips, see Chapter 51, “Working with Video in Pro Tools.”

Whole-File Audio Clips These audio clips are created when recording or importing audio, consolidating existing clips, and when nondestructively processing with an AudioSuite plug-in. Whole-file audio clips reference an entire audio file that resides on your hard drive. Whole-file audio clips are displayed in bold in the Clip List (see Chapter 15, “The Clip List”). Normal clips often reference only a portion of the parent audio file and are created in the course of editing and, in some instances, when punch recording or loop recording.

User-Defined Clips These are clips that are explicitly defined, such as when you record or import audio or MIDI; capture, separate, or consolidate a selection; trim a whole-file audio clip; or rename an existing clip.

Auto-Created Clips These clips are automatically created in the course of editing, and, in some instances, when punch recording over existing clips. Since these clips can accumulate rapidly in a session, you can hide them in the Clip List. Auto-created clips can be turned into user-defined clips by renaming them.



For more information, see “Naming and Displaying Clips in the Clip List” on page 280.

Offline Clips Clips are *offline* when their parent files cannot be located, or are not available, when opening a session or importing a track. Offline clips appear in the Clip List as italicized and dimmed; they appear in playlists as light blue clips with italicized names. Offline clips can be edited like other clips, but they cannot be processed with AudioSuite plug-ins.

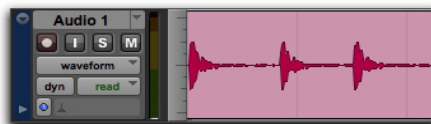
Multichannel Clips These clips, which are displayed as a single clip in the Clip List, reference multiple clips and audio files for stereo and surround tracks. Multichannel clips can be expanded (by clicking the triangle next to their name) to see the individual channels, which can be dragged independently to tracks.

Clip Groups A *clip group* is a collection of any combination of audio and MIDI clips that looks and acts like a single clip. Clip groups are essentially containers holding one or more clips. Clip groups can be created on a single track or on multiple adjacent audio, MIDI, and Instrument tracks. Clip groups let you “nest” multiple clips into “macro” clips for groove and tempo manipulation, editing, and arranging (see “Clip Groups” on page 847).

Warped Clips Clips on Real-Time Elastic Audio-enabled tracks can be *warped*. Warped clips are identified with a Warp Indicator icon in the upper-right corner of clips on tracks and to the left of clip names in the Clip List. Warped clips result from the application of Elastic Audio processing. Elastic Audio processing can be applied manually in Warp view or using the TCE Trim Tool in Waveform view, or automatically using tempo conform, quantization, or transposition (see “Warped Clips” on page 892).

Audio Clips and Waveforms

When the Track View for audio tracks is set to Waveform, Pro Tools draws a waveform diagram of the audio. Audio waveforms tell you several things about the recorded sound.



Audio waveform of a drum track

In the figure above, the “peaks” represent places in the recording where the attack of the sound causes the volume to increase momentarily. These are followed by “valleys,” where the volume decreases.

Different types of sounds produce different types of waveforms. Drums, for example, generally produce waveforms with sharp *transients* (peaks of short duration) that are clearly defined. A drum hit has a loud, sharp attack and a rapid decay.

Other sounds, such as vocals or sustained synthesizer pads, produce very different waveforms. These sounds have less pronounced peaks and valleys because they generally have softer attacks and longer decays.

Waveform Views

Pro Tools provides a several different Waveform View options. Depending on the editing task, you may want to display waveforms in any number of different ways.

Calculating Waveform Overviews

Waveforms can be calculated using Peak or Power overviews.

To set how the Waveform view is calculated:

- Choose View > Waveforms and select Peak or Power

Peak When selected, the waveform display is calculated based on the sample-by-sample peak level. Peak view is traditionally how Pro Tools calculates the waveform overview and can be used for normal or rectified views. Peak view clearly displays any clipping in the waveform.



Normal Peak Waveform view with Outlines



When zoomed in to the sample level, Pro Tools always displays Peak view.

Power When selected, the wave form display is calculated according to the Root Mean Square (RMS). Power view can be used for normal or rectified views. Power view is useful for better seeing the characteristics of the audio in the waveform representation when zoomed out beyond the sample level. For mastering applications in particular, it can be more revealing of the sonic characteristics of the audio than Peak view.



Normal Power Waveform view with Outlines



Peak view is always shown during recording. Power waveform view is calculated and shown only after you stop recording.



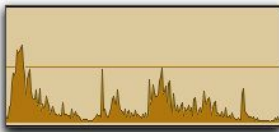
Power view is not available in Destructive Punch mode or when zoomed to the sample level.

Rectified Waveforms

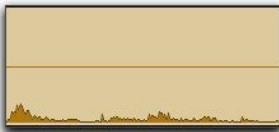
Rectified waveforms are displayed so that their positive and negative waveform excursions (the portions that fall above and below the center line) are summed together and viewed as a single positive-value signal. This view lets you see more waveform detail in normal or reduced track height views. It can be particularly useful when editing volume automation data, since it depicts waveform levels as starting at the bottom of the track. Rectified view is available in both Peak and Power views.

To show waveforms rectified (or normally):

- Select (or deselect) View > Waveforms > Rectified.



Rectified Peak Waveform view with Outlines



Rectified Power Waveform view with Outlines



When zoomed in to the sample level, Pro Tools always displays waveforms in Normal Peak view.

Outlined Waveforms

Outlined waveforms provide more visual definition of the waveform, especially when viewed from a distance. However, you may want to disable Outlines when you need to do precise, detailed editing in Peak waveform view. Outlines are not displayed when you are zoomed in to the sample level.

To show (or hide) waveform outlines:

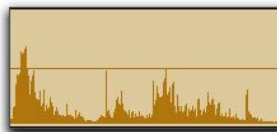
- Select (or deselect) View > Waveforms > Outlines.



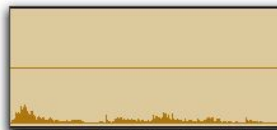
Peak Waveform view without Outlines



Power Waveform view without Outlines



Rectified Peak Waveform view without Outlines



Rectified Power Waveform view without Outlines

Guidelines for Editing Waveforms

With the Selector tool in the Edit window, you can select portions of audio waveforms and divide them into segments called *clips*, so that you can rearrange and manipulate them in tracks.

While editing musical material, try to create clips that let you maintain a consistent beat. If you always define clips so that they contain a whole number of beats, you will be able to string the clips together and maintain a smooth, steady rhythm.

It is sometimes useful to have a steady, well-defined reference waveform (such as a drum track or click track) as a guide when selecting and defining other clips. If you have played in time with the beat, it should be easier to create rhythmically accurate clips by referring to the reference waveform.

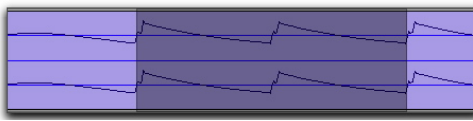
Some important rules to keep in mind when defining clips:

- ◆ Whenever possible, begin a clip precisely before a volume peak, and end it immediately before another volume peak.
- ◆ Whenever possible, make sure a clip starts and ends on exactly the same part of a beat.
- ◆ Use the following Pro Tools features to help you edit rhythmic material or audio with clear transients into precise clips:
 - Tab to Transients (see “Tabbing to Transients” on page 576.)
 - Editing to a Grid (see “Grid Mode” on page 537)
 - Beat Detective (see Chapter 30, “Beat Detective”)

Avoiding Clicks and Pops

If an edited clip begins or ends at a point of high amplitude, you may hear a click when Pro Tools plays from one clip to another. In order to avoid clicks or pops do any of the following:

- ◆ Make sure that the start and end points of your selection are as close as possible to the point where the amplitude of the waveform tapers down to meet the *zero-crossing* line (the center line of the track’s waveform display). If necessary, use the zooming tools in the Edit window (see “Zooming Options” on page 540) to display waveforms in greater detail.



Selection that begins and ends at zero crossings

- ◆ Apply a crossfade between clips where a click or pop occurs. See “Creating a Crossfade” on page 621 for details.
- ◆ With Pro Tools HD and Pro Tools with Complete Production Toolkit, use the AutoFade feature to apply real-time fade-ins/outs to all clip boundaries that do not touch or overlap other clips. See “Using AutoFades” on page 622 for details.

Nondestructive Audio Editing


When editing an audio track's playlist in Pro Tools, you are not actually cutting and moving pieces of sound as you would if you were cutting and splicing analog tape. Instead, Pro Tools creates a map of the audio file on your hard disk, which describes the order in which to play various portions of the audio.

When trimming audio clips with any of the Trim tools, or when editing the placement or order of clips within a track, you can use multiple playlists to easily return to a track's previous state. For more information, see "Playlists" on page 629.

Audio Clips and Automation Data

Automation data for audio resides in tracks and *not* in the Clip List. This means that when you drag an audio clip from the Clip List to a new track, no automation data is placed in the track. However, if you drag an audio clip from an existing track (that contains automation data) to another track, the automation from the source track is placed in the destination track.


You can edit automation data by switching track views or by revealing the automation lanes under the track.


 *For more information on automation, see Chapter 44, "Automation."*

MIDI Clips and MIDI Data

The two most common Track Views you will use for MIDI and Instrument tracks are Notes and Clips:

- ◆ Use Clips view for arranging clips.
- ◆ Use Notes view for inserting and editing individual MIDI notes, and for working with and affecting groups of notes.

 *For more information on setting Track View, see "Track Views" on page 230.*


 *To toggle the Track View between Notes and Clips, click in the track you want to toggle and press Start+Minus (Windows) or Control+Minus (Mac) on the alphanumeric keyboard.*

Clips View for MIDI and Instrument Tracks

MIDI and Instrument tracks can be viewed as Clips, which is similar to Waveform view for audio tracks. While a track's notes are visible in Clips view, individual note editing is not available in this view. Instead, all editing occurs across a time range encompassing all track data, including continuous controller events, program changes, and System Exclusive events.

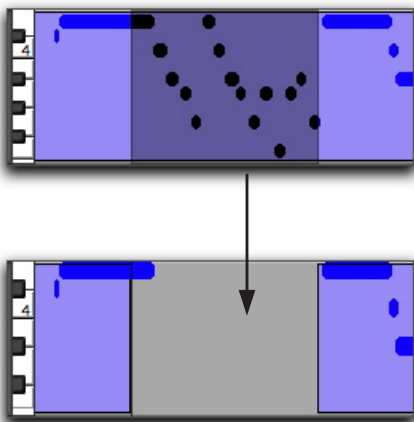
Use Clips view to define clips that represent song sections and clips, or to rearrange or assemble track material.

In Clips view, the vertical zoom is automatically scaled to fit the entire range of pitches of MIDI notes on a track.

 *You can double-click a MIDI clip to open it in the MIDI Editor window. See Chapter 32, "MIDI Editors."*

There are a few things to consider when selecting, copying and cutting, and trimming MIDI clips:


- ◆ When cutting or clearing a clip or clip group selection that includes a note's start point, the entire note is removed. This is even the case when only a portion of the note (that includes its start point) is selected.
- ◆ When cutting or clearing a clip or clip group selection that includes a note's end point (but not its start point), the note remains and overlaps the edge of the clip.



Cutting a MIDI clip with note overlap

- ◆ Similar rules also apply when MIDI clips or clip groups containing MIDI clips are trimmed with any of the Trim tools. If the MIDI clip's start point is moved beyond a note's start point, the note is removed. If the clip's end point is trimmed so that a note's start point is within the clip but its end point is not, the note remains and overlaps the edge of the clip.

When moving and placing MIDI clips with overlapping notes, the notes always move with the clips. When placing MIDI clips with overlapping notes next to or near another clip, the overlapping notes extend into the next clip on the track.

 *To separate MIDI notes, rather than leave them hanging, when separating, cutting or copying clips, make the Edit selection you want, switch to Notes view and use the **Separate At Selection** command, then switch back to Clips view and make the edit (separating, cutting, or copying).*

MIDI Clips Created on Barlines


When recording MIDI, or when manually entering MIDI notes, the beginning and ending of resulting MIDI clips are constrained to bar boundaries. This facilitates arranging MIDI clips in a musically meaningful way, in whole bar lengths.

The beginning of a recorded MIDI clip always starts on the barline immediately before the first MIDI note (Note On) of the clip. Likewise, the MIDI clip ends on the barline immediately following the last note (Note Off) of the clip.

MIDI Clips and Continuous Controller Events

Continuous controller events reside in MIDI clips and not in tracks. This means that when dragging clips that contain controller data from either a track or the Clip List, the controller data is written to the destination track.

You can edit continuous controller events by switching track views or by revealing the controller lanes under the track.

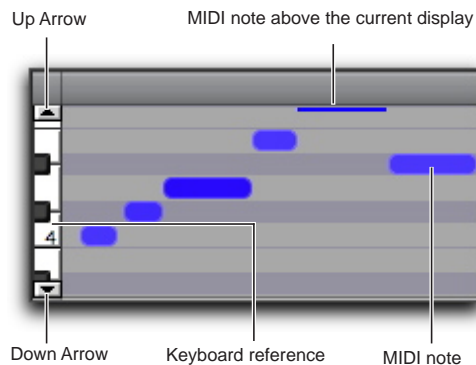
 *For more information on editing MIDI controller data, see Chapter 31, "MIDI Editing."*

MIDI Mute Automation

Unlike continuous controller events, which represent nuances that are part of a MIDI performance, Mute in Pro Tools is an automation playlist that actually mutes the MIDI engine. Mute automation does not correspond to actual MIDI events and is therefore not exported when saving as a Standard MIDI File.

Notes View for MIDI and Instrument Tracks

When a MIDI or Instrument track's Track View is set to Notes, MIDI notes are displayed in a "piano roll" format. Each note is displayed as a small rectangle with its vertical placement indicating pitch and its horizontal placement indicating location in time (and duration).



MIDI track displaying notes

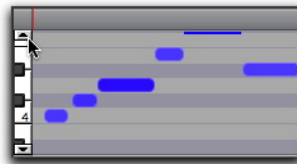
To the left of the MIDI or Instrument track's playlist is a vertical mini-keyboard, complete with octave numbering, for pitch reference. You can click the mini-keyboard to play pitches using the track's selected MIDI output. Arrows at the top and bottom of the mini-keyboard (not available in the smaller track heights) are used to scroll the Notes display up and down.

A Clicking the mini-keyboard clears the current Edit selection. For more information, see "Selecting MIDI Notes" on page 682.

In Notes view, the pitch range of MIDI notes that can be displayed depends on the track height, and on the current zoom value. Any time a track's notes do not fit within its current height, notes above or below the viewed area are displayed as single-pixel lines at the very top and bottom of the range.

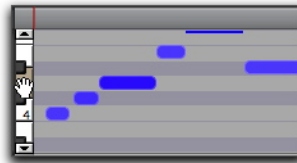
To scroll the Notes display up or down for a MIDI or Instrument track, do one of the following:

- Click either the up or down arrow of the mini-keyboard.



Scrolling notes with the Up Arrow on mini-keyboard

- With any of the Edit tools (such as the Time Grabber tool) selected, press Control+Alt+Start (Windows) or Command+Option+Control (Mac) and drag up or down on the mini-keyboard.



Scrolling Notes display by dragging

- If you have a mouse with a scroll wheel, move the cursor over the track and Control-Alt-Start-scroll (Windows) or Command-Option-Control-scroll (Mac) up or down to scroll the notes display up or down.

Using the Edit tools, notes can be inserted, deleted, transposed, trimmed, and moved. For more information, see “Manually Editing MIDI Notes” on page 682.

Nondestructive MIDI Editing

While editing audio clips is usually nondestructive, this is generally not the case for MIDI clips. For instance, if a MIDI clip resides in just one track at a single location, editing for that clip *is* destructive. This means that altering the pitch, duration, or placement of notes in Notes view permanently alters the clip.

However, if the Mirror MIDI Editing option is disabled, when editing a MIDI clip that appears elsewhere in the session (either on the same track at another location or in a different playlist, or in another track), editing is nondestructive and creates a new auto-created clip. To go back to the previous material, drag the original clip from the Clip List, or return to a previously saved playlist.

💡 *One way to safely return to a track’s previous state is with playlists. Before you edit notes, trim clips, or rearrange the order of clips, make a duplicate of the track’s existing playlist and then edit the duplicate (see “Playlists” on page 629).*

💡 *To apply edits to all instances of a MIDI clip, enable Mirrored MIDI Editing mode (see “Mirrored MIDI Editing” on page 677).*

Naming Clips

You can rename clips to give them more descriptive names, or to simplify existing names. When renaming a clip that was auto-created during editing, the clip becomes a user-defined clip and is displayed in the Clip List even when auto-created clips are hidden.

📖 *For details on renaming clips, see “Renaming Clips” on page 280.*

To rename a clip on a track:

- 1 Do one of the following:
 - Select the clip you want to rename and then choose Clip > Rename.
 - With any of the Edit tools, Right-click the clip that you want to rename and select Rename from the pop-up menu.
 - Press Control+Shift+R (Windows) or Command+Shift+R (Mac).
 - With the Grabber tool, double-click the clip you want to rename. For MIDI clips, the Name Dialog option must be selected as the Double-Clicking a MIDI Clip Opens setting in the MIDI Preferences.
- 2 In the Name dialog, type a new name for the clip. If a whole-file audio clip was selected, specify whether to rename just the clip, or both the clip *and* the disk file.



Name dialog

- 3 Click OK to rename the clip.

Displaying Clip Names, Clip Times, and Other Data

Clip names and times can sometimes get in the way of editing audio waveforms and MIDI data. In these instances, you may want to disable their display. In other instances, such as arranging or spotting Foley, displaying clip names and times is extremely useful.

To enable or disable the display of clip names in playlists:

- Select or deselect View > Clip > Name.

To display clip times:

- From View > Clip, select one of the following options:

No Time Disables display of clip times.

Current Time Displays start and end times for clips.

Original Time Stamp Displays the Original Time Stamp for each clip. The Original Time Stamp is the original timecode location for the clip when it was first recorded or created.

User Time Stamp Displays the User Time Stamp for each clip. The User Time Stamp, which defaults to the Original Time Stamp, can be redefined with the Time Stamp command.



Display enabled for clip names, Overlap, and times

Displaying Clip Data on All Channels

For stereo and greater-than-stereo multichannel tracks, clip data can be shown on all channels.

To enable or disable the display of clip data on all channels:

- Select or deselect View > Clip > Display on All Channels.

Displaying Other Clip Information

You can also choose to display the following in clips:

Sync Points Can be displayed on clips in playlists. This is useful when visually spotting to timecode or in arranging in Grid mode. For more information, see “Sync Points” on page 833.

Processing State For clips that are processed with Elastic Audio, displays a Warp indicator in playlists and in the Clip List. See “Warped Clips” on page 892.

Channel Name and Scene And Take Information Can be displayed in clips in playlists and in the Clip List. This is useful for working with multichannel recordings and metadata made by field recorders. For detailed information on workflows for field recorders, see Chapter 50, “Working with Field Recorders in Pro Tools.”

Rating Can be displayed on clips in playlists. This is useful for arranging when working with multiple playlists and alternate takes. See “Rating Clips” on page 609.

Clip Overlaps Can be displayed on clips in playlists. This is useful for arranging and when working with tick-based audio tracks. See “Clip Overlap and Underlap” on page 591.

Clip Gain Line Shows the Clip Gain Line for all clips in the Edit window. The Clip Gain Line lets you edit the clip gain settings for any given clip using breakpoint editing, much like with track-based volume automation. See “Clip Gain Line” on page 600.

Clip Gain Info Shows the Clip Gain Fader icon at the beginning of the clip, in the lower left corner. If the clip uses static clip gain, the static Clip Gain value (–144 dB to +36.0 dB) for a clip is displayed to the right of the Clip Gain Fader icon. For a clip that has dynamic clip gain (using breakpoint gain settings), the Clip Gain value is not shown. For more information, see “Clip Gain Info View” on page 599.

Multiple Undo

Pro Tools can keep track of up to 32 of the last undoable operations, allowing you to return to a previous editing state.

The Undo operations in Pro Tools are stored in a queue, in the order in which they were invoked. When choosing **Edit > Undo**, the most recent operation is undone. If you choose Undo again, the next operation in the queue is undone. You can also choose **Edit > Redo** to redo an operation, which moves back through the Undo queue by one step.

When the number of operations in the Undo queue reaches the maximum specified level of Undo (set in the Editing Preferences page), performing another undoable operation will remove the oldest operation at the top of the queue.

To undo the last operation, do one of the following:

- Choose **Edit > Undo**.
- Press **Control+Z** (Windows) or **Command+Z** (Mac).

! *If no actions are available to undo, the menu displays Can't Undo.*

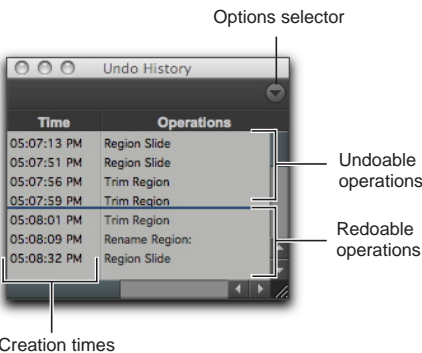
To redo the last undone operation, do one of the following:

- Choose **Edit > Redo**.
- Press **Shift+Control+Z** (Windows) or **Shift+Command+Z** (Mac).

! *If no actions are available to redo, the menu displays Can't Redo.*

Undo History Window

You can use the Undo History window to view the queue of the undoable and redoable operations and return to any previous state. The Undo History can show edit creation times, enabling you to revert to the state a session held at a particular time.



Undo History Window

To show (or hide) the Undo History window:

- Choose **Window > Undo History**.

To undo operations in the Undo History window:

- Click the operation (bold) in the list to undo.

All operations in the queue that were performed after the operation you select are also undone. In the Undo History window, undoable operations are shown in bold and redoable operations (operations that have already been undone) are shown in italics.

To redo operations in the Undo History window:

- Click the operation (italics) in the list to redo.

The operation you choose, as well as all the operations in the queue before it, are redone.

To toggle display of creation times in the Undo History window:

- Click the Options pop-up menu and choose Show Creation Times.

To undo all the operations in the Undo Queue:

- Click the Options pop-up menu and choose Undo All.

To redo all the operations in the Redo Queue:

- Click the Options pop-up menu and choose Redo All.

Clearing the Undo Queue

To manually clear the Undo Queue

- Click the Options pop-up menu and choose Clear Undo Queue.

Other operations that clear the Undo Queue include:

- Deleting a track, or clearing a clip from the Clip List
- Selecting Select > Unused, or Select > Unused Audio Except Whole Files in the Clip List menu

When the number of operations in the Undo History reaches the maximum level of Undo, performing another undoable operation removes the oldest operation at the top of the Undo History queue. When the oldest operation is one operation away from being pushed out of the queue, it is shown in red.

Levels of Undo and Memory

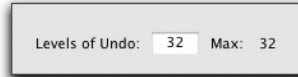
Because Pro Tools needs to keep track of the playlists for all tracks that are edited, the use of multiple levels of Undo can be memory intensive. You can lower the Levels of Undo setting (Editing Preferences) in Pro Tools to reduce the amount of system memory (RAM) used by the Undo queue. If you have plenty of memory available for Pro Tools, you can use a higher Levels Of Undo setting.



Use the Undo History window to view a queue of undo operations and return to a previous state.

To set the Levels of Undo in Pro Tools:

- 1 Choose Setup > Preferences and click the Editing tab.
- 2 Click in the Levels of Undo field and type a value between 1–32.



Levels of Undo preference


- 3 Click OK.

Basic Editing Commands

Pro Tools provides many standard edit commands (such as Cut, Copy, and Paste). Pro Tools also provides many specialized edit commands that are optimized for audio and MIDI production (such as Repeat Paste to Fill).

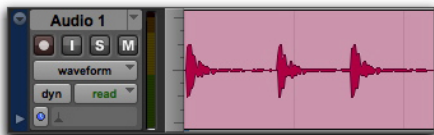
Cut, Copy, Paste, and Clear

Use the Cut, Copy, Paste, and Clear commands to rearrange and edit track material. Edits can operate on entire clips selected with the Time Grabber tool, or on track ranges selected with the Selector tool. Edits can also work across multiple tracks (see “Editing Across Multiple Tracks” on page 534).

 *You can Cut, Copy, and Paste noncontiguous clips by selecting them with the Object Grabber tool.*

Track View and Edit Content

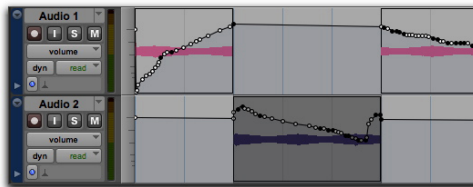
When cutting or copying track material, the Track View determines the type of data placed on the Clipboard. When editing in a track’s Master View (Waveform view for audio tracks and Clips view for MIDI or Instrument tracks), selections can include all underlying automation and controller data (“Automation Follows Edit Option” on page 1028). Thus, cutting an audio clip can also cut any volume, pan, mute, send, continuous controller, or plug-in automation that is also on the track. This saves you from having to individually cut from each automation playlist on the track.




Audio waveform data

When selecting groups of MIDI notes in Notes view with any of the Grabber tools (by drawing a rectangle around them), only the note data is placed on the Clipboard. When selecting a time range of MIDI notes (in Notes view) with the Selector tool, all controller data in the track is selected (similar to selecting with the Selector tool for audio tracks in Waveform view).

When a track is displaying automation data or controller data, only that data is placed on the Clipboard. Also, whenever you cut or copy automation data, bounding breakpoints are created at each end of the selected area, in order to preserve the slope of the automation both inside and outside the selection.



Automation data with Cut and Pasted audio clip

 *Use Control+Start+V (Windows) or Command+Control+V (Mac) to special paste automation data into another automation type. For example, you can copy Pan automation into a Volume automation playlist.*

If tracks are grouped, copying and pasting on any of the tracks affects each of the other tracks in the group. Tracks that are hidden—even if they are part of a group being edited—are not affected by edits.

The Shuffle Clips option affects how material is cut and pasted:

- When Shuffle Clips is enabled, the Cut command leaves no empty space, since the clips to the right of the cut slide over, closing the gap. Otherwise the Cut command leaves an empty space corresponding to the data removed from the track.
- When Shuffle Clips is enabled, pasted data causes all clips to slide over to make room for the pasted material. Otherwise, pasted data can overlap an adjacent clip.

 *For more information on the Shuffle Clips option, see “Shuffle Mode” on page 535.*

New clips are often auto-created when performing edits. For instance, when clearing a selection from a clip, new clips are auto-created from the material residing outside of the selection.

Cut and Copy Commands

Use the Cut command to remove the selection from the track and place it on the Clipboard.


Use the Copy command to place a copy of the selection on the Clipboard so it can be pasted to another track, or to the same track at a different location, while leaving the original intact and in place.

To cut or copy a selection or clip:

- 1 If you want to constrain the selection to the current Grid value, enable Snap to Grid.
- 2 Set the Track View for the tracks you want to edit.

When displaying waveforms for audio tracks, or notes or clips for MIDI tracks, selections include underlying automation and controller data. If the track is displaying automation data, only the automation data is affected by the edits.

- 3 Make an Edit selection of the material you want to Cut or Copy.

 *For information on making Edit selections, see “Selecting Track Material” on page 567.*

- 4 Do one of the following:

- Choose Edit > Cut to remove the selection and place it on the Clipboard.
- Choose Edit > Copy to place the selection on the Clipboard, without removing it.

If a portion of a clip was cut or copied, the material on the Clipboard appears as a new clip in the Clip List. If a portion of a clip was cut, new clips are auto-created from the material residing outside of the selection.

When Shuffle Clips is enabled, any subsequent clips slide over to fill any empty space.

Deleting Underlying Clip Data

When removing a clip or selection, you can choose to remove or keep the underlying clip data.

To delete a clip or selection along with the underlying clip data:

- Choose Edit > Cut.

To delete a clip or selection without removing the underlying clip data:

- Choose Edit > Clear.

Paste Command

Use the **Paste** command to place the contents of the Clipboard at the Edit insertion point, and overwrite any material already there.

To paste a selection or clip:

- 1 If you want to constrain the insertion point or the selection to the current Grid value, enable Snap to Grid.
- 2 Do one of the following:
 - With the Selector tool, click in a track at the point where you want to paste the material.
 - Use the Selector or Time Grabber tool to make a selection where the material will be placed.



With the Grabber tool, Start-click (Windows) or Control-click (Mac) a clip to conform it to the current selection.

- 3 Choose **Edit > Paste**.

If pasting at an insertion point with Shuffle Clips enabled, material to the right of the paste point is shifted to the right. Otherwise, any material within the paste range is overwritten.

If pasting into a selection with Shuffle Clips enabled, the selection is replaced by the Clipboard's contents with the adjacent material slid left or right as necessary. Otherwise, the selection is also replaced but with the surrounding material remaining unchanged.



*When working with MIDI, you can merge the contents of the Clipboard with material in the destination track using **Edit > Paste Special > Merge**. For more information, see “Paste Special” on page 1054.*

Clear Command

Use the **Clear** command to remove a selection from a track without placing it on the Clipboard.

To clear a selection or clip:

- 1 If you want to constrain the selection to the current Grid value, enable Snap to Grid.
- 2 Set the Track View for the tracks you want to edit.


When displaying waveforms for audio tracks, or notes or clips for MIDI tracks, selections include underlying automation and controller data. If the track is displaying automation data, only the automation data is affected by the edits.


- 3 Make an Edit selection.
- 4 Choose **Edit > Clear** to remove the selection.

If a portion of a clip was cleared, new clips are auto-created from the material residing outside of the selection. When Shuffle Clips is enabled, any subsequent clips slide over to fill any empty space.

Special Cut, Copy, Paste, and Clear Commands

Use the four “special” Edit menu commands (Cut Special, Copy Special, Paste Special, and Clear Special) for cutting, copying, pasting, and clearing automation (volume, pan, mute, and plug-in automation) on audio, Auxiliary Input, Master Fader, VCA Master, and Instrument tracks. These commands can also be used for MIDI controller data on MIDI and Instrument tracks. There are also Cut Special, Copy Special, and Clear Special commands for cutting, copying, and clearing clip gain settings (see “Clip Gain” on page 598).

 *You cannot paste MIDI controller data to automation data nor automation to MIDI.*

 *For more information, see “Cutting, Copying, and Pasting Automation” on page 1051.*

Repeat To Fill Selection

The Repeat to Fill Selection command lets you automatically fill a selection with audio or MIDI clips or data without requiring that you manually duplicate the clips. To use Repeat to Fill Selection, Cut or Copy a clip, then make a selection and use the command to fill the selection. When pasting audio clips, you are prompted to specify a cross-fade to be used for the pasted clips.

If you fill an area that is an exact multiple of the copied clip size (for example, filling 16 bars with a 4-bar clip), the copied selection is pasted as many times as it takes to fill the selection. If you fill an area that is not an exact multiple of the copied clip size (for example, filling 15 seconds of a track with a 2-second clip of room noise), the remaining selection area is filled with an automatically trimmed version of the original selection.

To fill a selection with Repeat to Fill Selection:

- 1 Select the clip you want to copy.
- 2 Choose Edit > Copy.
- 3 Select the area you want to fill using the Selector tool and choose Edit > Paste Special > Repeat to Fill Selection.
- 4 Do one of the following:
 - If pasting audio clips to larger areas, the Batch Fades dialog opens. Configure the dialog to create crossfades between each pasted clip, then click OK.
 - If you do not want crossfades for the pasted audio, click Cancel in the Batch Fades dialog.

Editing Across Multiple Tracks

When working with data from multiple tracks, there are some important points to remember. For example, if any selected tracks are set to their master view (see “Master Views for Tracks” on page 234), edits affect not only audio and MIDI for the selected tracks, but *all* automation and controller data as well.

If all selected tracks are displayed as automation data, edits only affect the type of automation data displayed in each track. Furthermore, if track 1 displays Pan automation, track 2 displays Volume automation, and track 3 displays Mute automation, the Cut command cuts *only* pan data from track 1, volume data from track 2, and mute data from track 3.



For more information on selecting data on multiple tracks, see “Selecting Across Multiple Tracks” on page 573.

To copy all types of automation on all selected tracks when copying only automation or controller data:

- Choose Edit > Copy Special > All Automation.

To paste to multiple tracks:

- 1 Do one of the following:
 - Place the insertion point in each of the destination tracks by Shift-clicking in them.
 - Make a selection in one of the Timebase rulers.
- 2 Choose Edit > Paste.

When you paste multiple types of data, whatever data has been copied is pasted into the correct type of playlist. Automation data is pasted into the corresponding automation playlist. Audio or MIDI data is pasted into the audio or MIDI playlist. You do not need to set target tracks to the specific type of data being pasted for the paste to work correctly.

If *all* destination tracks in a multitrack paste are displayed as automation, the paste replaces any previous data on the target track without shuffling—regardless of whether Shuffle Clips is enabled.

Chapter 25: Edit Modes and Tools

Pro Tools provides four Edit modes and various Edit tools to help you successfully edit material.


Edit Modes

Pro Tools has four Edit modes: Shuffle, Spot, Slip, and Grid. Grid mode provides two modes of operation, Relative and Absolute, explained below. The Edit mode is selected by clicking the corresponding button in the upper left of the Edit window.



Edit mode buttons

The Edit mode affects the movement and placement of audio and MIDI clips (and MIDI notes), how commands like Copy and Paste function, and also how the various Edit tools (Trim, Selector, Grabber, and Pencil tools) work.


 Use the Accent key (`) to toggle through the Edit modes.

Shuffle Mode

In Shuffle mode, you can move, trim, delete, cut, or paste clips freely within a track or to other tracks, but their movement is constrained by other clips. That is, if you place several clips in a track, they automatically snap to each other. You can then “shuffle” their order, but you cannot separate them from each other and you cannot make them overlap as in Slip mode. However, if there is silence between existing clips, and the clips are shuffled, the silence is maintained, and not removed.

In Shuffle mode, adding another clip to the beginning of a track moves all subsequent clips to the right (later in time) by the length of the added clip.

When using any of the Trim tools in Shuffle mode, changing a clip’s start or end point automatically moves any subsequent clips as necessary. The placement and insertion of MIDI notes is not affected by Shuffle mode.

 Press F1 to enable Shuffle mode.

Shuffle Lock

With certain workflows, it is important to exclude Shuffle mode in order to ensure that clips stay time-aligned while editing. Shuffle Lock prevents you from inadvertently entering Shuffle mode by disabling all key commands and control surface switches for Shuffle mode. You cannot invoke Shuffle Lock while in Shuffle mode.



Shuffle Lock enabled

To lock out Shuffle Mode:

- While in any Edit mode other than Shuffle mode, Control-click (Windows) or Command-click (Mac) the Shuffle button on-screen. A lock icon appears in the Shuffle button.

To unlock Shuffle Mode:

- Control-click (Windows) or Command-click (Mac) the locked Shuffle button on-screen.

Slip Mode

In Slip mode, clips can be moved freely within a track or to other tracks. In this mode, it is possible to place a clip so that there is space between it and other clips in a track. When the track is played back, this space is silent. It is also possible to move a clip so that it overlaps or completely covers another clip.

Use Slip mode when you want the Trim, Selector, Grabber, and Pencil tools to work without any restrictions to placement in time.



Press F2 to enable Slip mode.

Spot Mode

Use Spot mode to place clips at precise locations. In Spot mode you can specify a frame location (or a location based on any of the other time formats), capture an incoming Timecode address, or use a clip's time stamps as reference points for spotting. This can be particularly useful when performing post production tasks around SMPTE frame locations.


When Spot mode is enabled, Pro Tools asks you to specify a destination location when a clip is dragged from the Clip List, a DigiBase browser, Windows Explorer, or the Mac Finder.



Press F3 to enable Spot mode.

Grid Mode

In Grid mode, clips and MIDI notes that are moved, trimmed or inserted “snap” to the currently selected Grid value, or to precise increments on a user-definable time grid.

 Press F4 to enable Grid mode.

Displaying Grid Lines

To show (or hide) the Grid lines in the Edit window or in a MIDI Editor window, do one of the following:

- Select (or deselect) the Grid button.



Grid button selected in the Edit window

- Click the Name of the currently selected Timebase ruler.



Turning on Grid lines from a Timebase ruler

Absolute and Relative Grid


Grid mode can be applied in Absolute or Relative mode:

- ◆ In Absolute Grid mode, moving any clip snaps the clip start to Grid boundaries. If a clip’s start point falls between beats, and the Grid is set to 1/4 notes, dragging the clip will *snap* its start time to the nearest 1/4 note (the current absolute Grid value).

- ◆ In Relative Grid mode, clips can be moved by Grid (or Nudge) *units*. If a clip’s start point falls between beats and the Grid is set to a 1/4 note (assuming the 1/4 note gets the beat), dragging the clip will be constrained to 1/4 notes, preserving the clip’s relative position to the nearest beat. For more information on Relative Grid mode, see “Sliding Clips in Grid Mode” on page 829.

To select Absolute or Relative Grid mode:

- Click the Grid mode selector and choose Absolute or Relative.

 *To temporarily suspend Grid mode and switch to Slip mode while dragging a clip, hold the Control key (Windows) or Command key (Mac) after clicking the mouse.*

Snap To Grid

Pro Tools lets you enable Snap To Grid while in Shuffle, Slip, or Spot mode. When in any of these modes with Snap To Grid also enabled, placing the Edit cursor and making Edit selections is constrained by the Grid, but any clip editing is also affected by the other selected Edit mode.

For example, in Shuffle mode, with Snap To Grid enabled, you can make a selection in a clip based on the Grid, cut the selection, and any clips to the right of the edit shuffle to the left.



Shuffle mode with Snap To Grid enabled

To enable Snap To Grid while in another Edit mode:

- Shift-click the Grid mode button.



Press Shift+F4 to enable Snap To Grid while in another Edit mode.

To enable Shuffle, Slip, or Spot while in Grid mode:

- Shift-click the Shuffle, Slip, or Spot mode button.

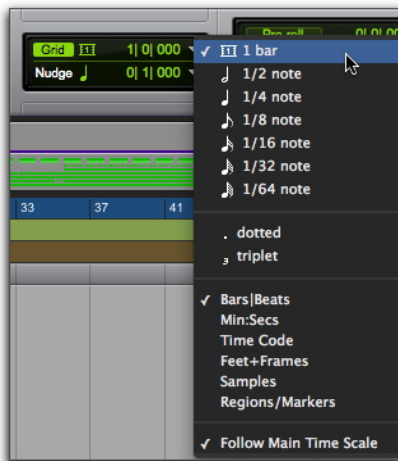


Press F1+F4 to enable Snap To Grid and Shuffle mode; press F2+F4 to enable Snap To Grid and Slip mode; and press F3+F4 to enable Snap To Grid and Spot mode.

Configuring the Grid

The actual Grid size, chosen from the Grid value selector can be based on a time value using the Main Time Scale; or, if the Follow Main Time Scale option is deselected, another time format can be used for the Grid size.

The Grid Value indicator and selector are located in the Edit window. Also, the Score Editor window and MIDI Editor windows each provide an independent Grid Value indicator and selector.




Grid Value indicator and pop-up menu



The current Grid value is also used for the Quantize to Grid command (see “Quantizing Clips to Grid” on page 597) and Separated Clip At Grid command (see “Separate Commands” on page 588).

The Clips/Markers option in the Grid Value menu allows events to be placed freely (as in Slip mode), but they will snap to clip locations (start, end, and sync points), markers, and Edit selections when placed near them.

 *MIDI notes inserted with the Pencil tool ignore the Clips/Markers option, and instead snap to the time value selected in the Grid Value selector.*

Grid Mode Lock

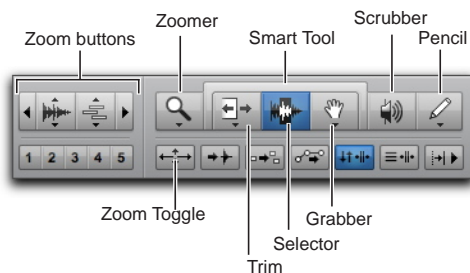
To ensure that you do not inadvertently change the Grid mode setting when using Edit mode keyboard shortcuts, you can enable Edit/Tool Mode Keyboard Lock.

To lock (or unlock) the selected Grid mode:

- 1 Click the Grid mode selector and choose Absolute or Relative.
- 2 Select (or deselect) Options > Edit/Tool Mode Keyboard Lock.

Edit Tools

Pro Tools provides the following Edit tools: the Zoomer, Trim, Selector, Grabber, Scrubber, and Pencil tools, and the multifunctional Smart Tool.





Zoom buttons and Edit tools

To select an Edit tool:

- Click the icon for the tool you want in the Toolbar.

The Zoomer, Trim, Grabber, and Pencil tools have multiple modes, which you can select from a pop-up menu when you click the tool.

 *You can use F5 (Zoomer), F6 (Trim), F7 (Selector), and F8 (Grabber), F9 (Scrubber), and F10 (Pencil) to select and toggle through the modes for each tool.*

 *Press the Escape key to toggle through the Edit tools.*

Zoom Buttons Use the Zoom buttons to zoom in and out vertically and horizontally on MIDI and audio track material. You can also store and recall five Zoom presets.

Zoomer Tool Use the Zoomer tool to select a zoom view in a track.

Zoom Toggle Use the Zoom Toggle to switch between the current zoom view and a defined zoom view.

Trim Tools Use the Trim tools to trim clips and clip groups.


Selector Tool Use the Selector to make selections on tracks.


Grabber Tools Use the Grabber tools to select, separate, or move clips on tracks.

Smart Tool Use the Smart tool to Trim, Select, or Grab clips in tracks.

Scrubber Tool Use the Scrubber tool to scrub through track material.

Pencil Tool Use the Pencil tool to draw automation and MIDI data.

 For information on using the Edit tools in Notes view on MIDI and Instrument tracks, see Chapter 31, “MIDI Editing.”

 For information on using the Edit tools in Warp view and Analysis view on Elastic Audio-enabled tracks, see “Editing in Warp View” on page 887 and “Editing in Analysis View” on page 893.

Zooming Options

Zooming options in Pro Tools include Zoom buttons, the Zoomer tool, the Zoom Preset buttons, and the Zoom Toggle command.

Zoom Buttons

Pro Tools includes different Zoom buttons for zooming in and out on track data.

The Edit window, MIDI Editor windows, and the Score Editor window also provide Zoom buttons above and below the right vertical scroll bar (see “Edit Window Zoom Buttons” on page 190, “MIDI Editor Zoom Controls” on page 720, and “Score Editor Zoom Controls” on page 741.)

Horizontal Zoom In and Out Buttons

The Horizontal Zoom In and Out buttons let you zoom in and out horizontally on track data.



Horizontal Zoom Out and In buttons

To zoom in horizontally for all tracks, do one of the following:

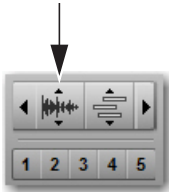
- Click the Horizontal Zoom In button.
- Drag on the Horizontal Zoom In button to zoom in continuously.
- Press Control+] (Windows) or Command+] (Mac).

To zoom out horizontally for all tracks, do one of the following:

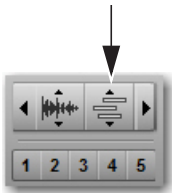
- Click the Horizontal Zoom Out button.
- Drag on the Horizontal Zoom Out button to zoom out continuously.
- Press Control+[(Windows) or Command+[(Mac).

Audio and MIDI Zoom In and Out Buttons

The Audio and MIDI Zoom buttons let you zoom in and out vertically on audio and MIDI data respectively.



Audio Vertical Zoom button



MIDI Vertical Zoom button

! *MIDI Vertical Zoom only affects tracks in not in Clips view.*

To zoom in vertically for all audio tracks, do one of the following:

- Click the Audio Zoom In button.
- Drag on the Audio Zoom In button to zoom continuously.
- Press Control+Alt+] (Windows) or Command+Option+] (Mac).

To zoom out vertically for all audio tracks, do one of the following:

- Click the Audio Zoom Out button.
- Click the Audio Vertical Zoom buttons.
- Press Control+Alt+[or Control+Alt+[(Windows) or Command+Option+[or Command+Option+[(Mac).

To zoom all audio vertically to show the default waveform height:

- Press Control+Alt+Start+[(Windows) or Command+Option+Control+[(Mac).

To zoom in vertically for all MIDI and Instrument tracks, do one of the following:

- Click the MIDI Zoom In button.
- Press Control+Shift+] (Windows) or Command+Shift+] (Mac).

To zoom out vertically for all MIDI and Instrument tracks, do one of the following:

- Click the MIDI Zoom Out button.
- Press Control+Shift+[(Windows) or Command+Shift+[(Mac).

To zoom MIDI vertically to show all notes (lowest to highest) in MIDI and Instrument tracks:

- Press Control+Start+Shift+[(Windows) or Command+Control+Shift+[(Mac)

To zoom in or out vertically for a single MIDI or Instrument track:

- 1 Make sure the Track View is not set to Clips.
- 2 Select the Zoomer tool.
- 3 Hold Start (Windows) or Control (Mac) and drag upwards to zoom in, or downward to zoom out.

Additional Zoom Key Commands

To return to the previous zoom level, do one of the following:

- Alt-click (Windows) or Option-click (Mac) any of the Horizontal, Audio, or MIDI Zoom buttons.
- Press Control+Alt+E (Windows) or Command+Option+E (Mac).

To zoom in horizontally on the Edit selection without affecting vertical zoom:

- Press Alt+F (Windows) or Option+F (Mac).

If the selection contains MIDI notes, the selected MIDI notes are vertically scrolled to show in tracks as necessary.

To zoom in horizontally on a selection without affecting vertical zoom or scrolling, do one of the following:

- Press Alt+Start+F (Windows) or Option+Control+F (Mac).
- Press Control+Start+] (Windows) or Command+Control+] (Mac).

To zoom horizontally to show the entire session, do one of the following:

- Double-click the Zoomer tool in the toolbar.
- Press Alt+A (Windows) or Option+A (Mac).

Audio waveforms revert to the default vertical zoom; on tracks set to Notes view, MIDI notes zoom vertically to show all notes in the track (same as the vertical zoom in Clips view); and the Tempo Editor zooms vertically to show all tempo events.

To zoom horizontally to show the entire session without affecting vertical zoom or scrolling, do one of the following:

- Press Alt+Start+A (Windows) or Option+Control+A (Mac).
- Press Control+Start+[(Windows) or Command+Control+[(Mac).

To set horizontal zoom to “overview scale” (256 samples per pixel):

- Control-click (Windows) or Command-click (Mac) the Zoomer tool.

Zoomer Tool

Use the Zoomer tool to zoom in and out around a particular area within a track.

The Zoomer tool offers two modes:

Normal Zoom The Zoomer tool remains selected after zooming.

Single Zoom The previously selected Edit tool is automatically reselected after zooming.



Press the F5 key to select the Zoomer tool and toggle between Normal and Single Zoom modes.

Normal Zoomer Tool

To zoom around a certain point in a track:

- 1 Do one of the following:
 - Click the Zoomer tool pop-up menu and select Normal Zoom mode.

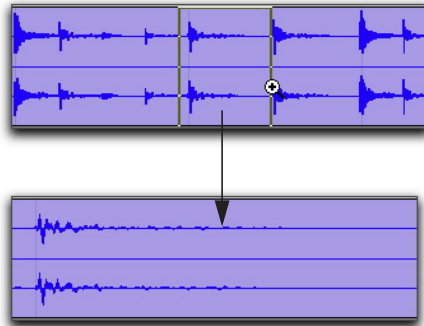


Zoomer tool

- Right-click on any track and select Tools > Zoomer Tools > Normal Zoom.
- 2 Click once with the Zoomer tool at a location within the track. All tracks are zoomed in by one level and the Edit window is centered around the zoomed location.
 - 3 To zoom back to the previous level, Alt-click (Windows) or Option-click (Mac) with the Zoomer tool.

To zoom into a particular track area:

- 1 Do one of the following:
 - Click the Zoomer tool pop-up menu and select Normal Zoom mode.
 - Right-click on any track and select Tools > Zoomer Tools > Normal Zoom.
- 2 Do one of the following:
 - To zoom horizontally only, drag with the Zoomer tool in the track's playlist.
 - To zoom horizontally *and* vertically, press Control (Windows) or Command (Mac) while dragging in the track's playlist.



Zooming horizontally with Zoomer tool

The zoomed area fills the entire Edit window.

Single Zoom Mode

Single Zoom mode returns you to the previously selected tool after a zoom has been performed.

For example, when using the Smart Tool you can click the Single Zoomer tool, and once the Zoom operation has been performed, Pro Tools automatically switches back to the Smart Tool.

To use Single Zoom mode, do one of the following:

- Click the Zoomer tool pop-up menu and select Single Zoom mode.
- Right-click on any track and select Tools > Zoomer Tools > Single Zoom.
- Press the F5 key to toggle to Single Zoom mode.

Single Zoom is identified with an arrow to the right of the Zoomer icon.



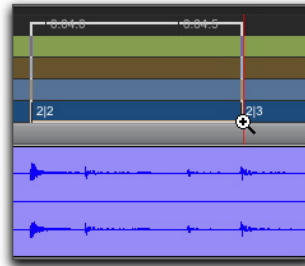
Single Zoom mode

Normal Zoom mode does not have the arrow.

Zooming in a Ruler

To zoom horizontally in a ruler:

- 1 Press Control+Start (Windows) or Command+Control (Mac) and move the cursor into the ruler area, so the Zoomer tool appears.



Zooming in a ruler

2 Do one of the following:

- Click once to zoom in one level around a certain point.
- Drag to zoom in around a particular ruler range.

Continuous Zoom with the Zoomer Tool

Use the Zoomer tool to zoom in or out continuously.

To use continuous zoom on one track or a group of tracks:

- 1 Select the Zoomer tool.
- 2 Hold the Start key (Windows) or Control (Mac) and do one of the following:
 - Drag up to continuously zoom in vertically.
 - Drag down to continuously zoom out vertically.
 - Drag to the right to continuously zoom in horizontally.
 - Drag to the left to continuously zoom out horizontally.

For horizontal zoom, all tracks zoom together. Tracks will zoom in or out centered horizontally on the location where you click.

Vertical Zooming In or Out of All Audio Tracks Continuously

To vertically zoom in or out of all audio tracks using continuous zoom:


- Drag up or down on the Audio Zoom In or Out button.


To vertically zoom in or out of all MIDI and Instrument tracks that are set to Notes view using continuous zoom:

- Drag up or down on the MIDI Zoom In or Out button. Any waveform height offsets will be maintained.

To zoom horizontally and show the entire session, and to reset the audio waveform to show the default height, zoom MIDI to show all notes in a track, and zoom the Tempo Editor to show all tempo events, do one of the following:

- Double-click the Zoomer tool.
- Press Alt+A (Windows) or Option+A (Mac).

 *This will also affect your MIDI note heights.*

 *To reset the default audio waveform heights without affecting the horizontal zoom level or MIDI note heights, press Control+Alt+Start+[(Windows) or Command+Option+Control+[(Mac).*

To only zoom horizontally to show the entire session without affecting vertical zoom or scrolling:

- Press Alt+Start+A (Windows) or Option+Control+A (Mac).

To set all audio track waveform heights to match the waveform height of the topmost audio track in the Edit window:

- Control-Shift-click (Windows) or Command-Shift-click (Mac) the Audio Zoom button. All waveform height offsets will be lost.

To set all MIDI and Instrument track note heights to match the note height of the topmost MIDI or Instrument track in the Edit window:

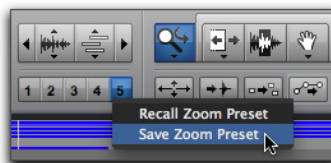
- Control-Shift-click (Windows) or Command-Shift-click (Mac) the MIDI Zoom button. All note height offsets will be lost.

Zoom Preset Buttons

Pro Tools lets you save up to five horizontal Edit window Zoom presets, which can be recalled by typing a number or by clicking a Zoom Preset button.

To store a view as a Zoom preset:

- 1 Use the Zoomer tool to configure the Track View.
- 2 Click and hold one of the Zoom Preset buttons (1–5) and choose Save Zoom Preset from the Zoom Preset pop-up menu.



Zoom Preset pop-up menu

To recall a saved Zoom preset, do one of the following:

- Click the appropriate Zoom Preset button (1–5).
- Click and hold the Zoom Preset button and choose Recall Zoom Preset from the Zoom Preset pop-up menu.

Zoom Toggle

Zoom Toggle lets you define and toggle between zoom states in the Edit window.

Zoom Toggle Parameters

The Zoom Toggle stores and recalls the following parameters:

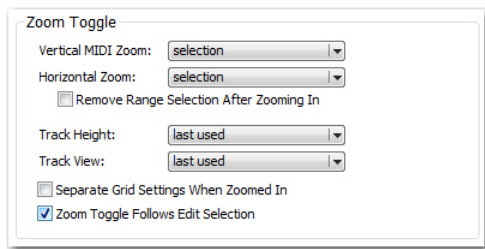
- Vertical Zoom
- Horizontal Zoom
- Track Height
- Track View
- Grid setting

Zoom Toggle Preferences

The Zoom Toggle preferences determine how Zoom Toggle works. Adjust the Zoom Toggle preferences to fit your workflow.

To change the Zoom Toggle preferences:

- 1 Choose Setup > Preferences.
- 2 Click the Editing tab.
- 3 Change the Zoom Toggle settings and options.



Zoom Toggle preferences



For MIDI Editing, set the Zoom Toggle preferences as follows: Vertical Zoom to Last Used, Horizontal Zoom to Last Used, Track View to Waveform/Notes, and Track Height to Fit to Window.



For audio editing, set the Zoom Toggle preferences as follows: Vertical Zoom to Selection, Horizontal Zoom to Selection, Track Height to Fit to Window, and Track View to No Change.

- 4 Click OK.

Vertical Zoom

Selection When selected, zoom toggling in zooms vertically to the current Edit Selection.

Last Used When selected, zoom toggling in zooms vertically to the last stored Zoom Toggle state for MIDI notes in Notes view only.

Horizontal Zoom

Selection When selected, zoom toggling in zooms horizontally to the current selection. This is especially useful for audio editing.

Last Used When selected, zoom toggling in zooms horizontally to the last stored Zoom Toggle state. This option can emulate a separate editor window. This is especially useful for editing MIDI notes.

Remove Range Selection After Zooming In

When the Remove Range Selection After Zooming In option is selected, the current Edit selection collapses into an insertion point after zoom toggling in.

Track Height

Last Used When selected, zoom toggling in changes all tracks containing an Edit Selection to the last used Track Height.

Medium When selected, zoom toggling in changes all tracks containing an Edit Selection to the Medium Track Height.

Large When selected, zoom toggling in changes all tracks containing an Edit Selection to the Large Track Height.

Jumbo When selected, zoom toggling in changes all tracks containing an Edit Selection to the Jumbo Track Height.

Extreme When selected, zoom toggling in changes all tracks containing an Edit Selection to the Extreme Track Height.

Fit To Window When selected, zoom toggling in changes all tracks containing an Edit Selection to the Fit To Window Track Height.

Track View

Waveform/Notes When selected, zoom toggling in changes the Track View for audio tracks to Waveform view, and changes the Track View for Instrument and MIDI tracks to Notes view.

Warp/Notes When selected, zoom toggling in changes the Track View for audio tracks to Warp view, and changes the Track View for Instrument and MIDI tracks to Notes view.

Last Used When selected, zoom toggling in changes the Track View to the last used Track View that was stored with Zoom Toggle.

No Change When selected, the track view does not change when zoom toggling in or out.

Separate Grid Settings When Zoomed In

When this option is selected, the Grid setting stored with Zoom toggle is recalled when zoom toggling in. When this option is deselected, the same (current) grid setting is used whether zoom toggling in or out.

Zoom Toggle Follows Edit Selection

When selected, this option ensures that zoom toggle automatically follows the current Edit selection. When disabled, changing the Edit selection has no affect on the currently toggled-in track.

Using Zoom Toggle

Depending on the Zoom Toggle preference settings, the Zoom Toggle button in the Edit window lets you define a zoom state and toggle between it and the current zoom state, or it zooms to the settings in the Zoom Toggle preferences. When Zoom Toggle is enabled, the Edit window displays the stored zoom state. Additionally, any changes made to the view while Zoom Toggle is enabled are also stored in the zoom state.

When Zoom Toggle is disabled, the Edit window reverts to the last zoom state.

To store a zoom state using Zoom Toggle:


- 1 Set the Zoom Toggle preferences.
- 2 Make an Edit selection.
- 3 Click the Zoom Toggle button. It lights to indicate that Zoom Toggle is enabled and Pro Tools zoom toggles in based on the settings of the Zoom Toggle preferences.




Zoom Toggle button in the Edit window

If Last Used is selected for any of the following, you can adjust the corresponding zoom, height, or view in the Edit window to update the stored zoom state:

- Vertical Zoom
- Horizontal Zoom
- Track Height
- Track View

 In Commands Keyboard Focus mode (see “Keyboard Focus” on page 30), press the E key to enable or disable Zoom Toggle.

 Press Alt+Shift+E (Windows) or Option+Shift+E (Mac) to cancel Zoom Toggle without reverting to the previous view.

To modify the stored Zoom Toggle state if Last Used is selected:

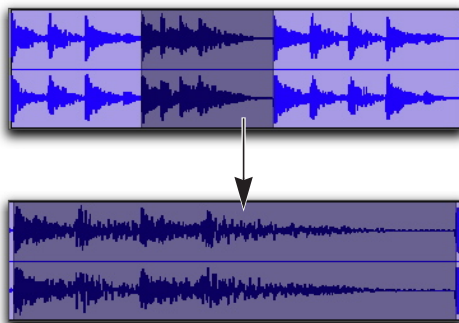
- 1 Make sure the Zoom Toggle button is lit (enabled).
- 2 Adjust the Track Height, Vertical Zoom, Track View, or the Grid depending on which preferences are set to Last Used. Changes are stored as the new Zoom Toggle state.

To clear the stored Zoom Toggle state:

- 1 Make sure the Zoom Toggle button is lit (enabled).
- 2 Alt-click (Windows) or Option-click (Mac) the Zoom Toggle button.

To use Zoom Toggle without changing playlist views:

- 1 Make a selection on one or more tracks.
- 2 Do one of the following:
 - Press Alt+Start+E (Windows) or Option+Control+E (Mac).
 - With Commands Keyboard Focus enabled (see “Keyboard Focus” on page 30), press Alt+E (Windows) or Option+E (Mac).




Using the Zoom Toggle

Auto-Toggle When Changing Selection

When Zoom Toggle is enabled, selecting a different range of material, or selecting material on a different track affects Zoom Toggle as follows:

- Changing the selection length does not re-zoom the window, the current zoom level is maintained.
- Changing the selection to a different track sets the toggle-in state for track height and view. However, horizontal zoom remains unchanged. When moving the selection from a toggled in track, the toggled out track height and view are restored.

 *Auto-Toggle does not work for Edit selections across multiple tracks that are Zoom-toggled to Fit to Window.*

Zooming with a Scroll Wheel

If you have a mouse with a scroll wheel, you can use the scroll wheel to zoom in and out of tracks, both vertically and horizontally.

To continuously zoom horizontally using a scroll wheel:

- Hold Alt (Windows) or Option (Mac) while turning the mouse scroll wheel.

To continuously zoom audio (vertical zoom) in the Edit window:

- Hold Alt+Shift (Windows) or Option+Shift (Mac) while turning the mouse scroll wheel.

To continuously zoom MIDI (vertical zoom) in the Edit window:

- Hold Alt+Start (Windows) or Option+Control (Mac) while turning the mouse scroll wheel.

To scroll the contents of the Edit window or Mix window horizontally:

- 1 Focus the window you want to scroll by clicking in it or bringing it forward.
- 2 Hold the Shift key while turning the mouse scroll wheel.

Using the Trim Tools

Trim tools provide clip, note, and data trimming functions. The following Trim tools are available:

- Trim tool; also called the Standard Trim tool
- Time Compression/Expansion Trim tool; also called the TCE Trim tool
- Scrub Trim tool (Pro Tools HD and Pro Tools with Complete Production Toolkit Only)
- Loop Trim tool

The Standard and Scrub Trim tools are only constrained by the boundaries of the whole-audio file referenced by the clip. The TCE Trim tool is only constrained by the maximum TCE amount when using the TCE Trim tool.

Trim Tool

With the Trim tool, you can quickly shorten or expand a clip (up to the entire length of the source audio file). The first time you trim a clip, Pro Tools automatically adds it to the Clip List as a new clip (with a name derived from the original) in order to differentiate it from the original.

The Trim tool is a nondestructive tool and does not actually modify the original audio or MIDI data (when working on clips). To return to the length of the original clip, drag it from the Clip List, or resize the edited clip with the Trim tool to its original length.

Use of the Trim tool is affected by the current Edit mode: Shuffle, Slip, Spot, or Grid (see “Edit Modes” on page 535).



The Trim tool can also be used to lengthen and shorten MIDI notes (see “Trimming Note Start and End Times” on page 685), and also to scale automation and controller data up or down. See “Drawing Automation” on page 1046.

To trim a clip with the Trim tool:

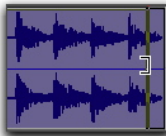
- 1 Select the Trim tool.
- 2 Do one of the following:
 - Click the Trim tool pop-up menu and select Standard.



Trim tool

- Right-click on any track and select Tools > Trim Tools > Standard.

- 3 Move the cursor near the start or end of the clip, so the Trim Tool cursor appears.



Trim tool

To reverse the direction of the Trim tool, press Alt (Windows) or Option (Mac).

- 4 Do one of the following:

- If trimming the end, drag left to shorten the clip, right to lengthen.
- If trimming the start, drag right to shorten the clip, left to lengthen.



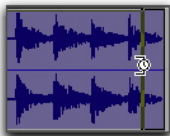
When working with audio, you cannot trim past the boundaries of adjacent clips.

When trimming clips in a stereo or multichannel track, all channels are trimmed.

When using Shuffle mode, subsequent clips are slid as necessary to make room for the edited clip. If using Grid mode, the dragged start/end times snap to the nearest Grid boundary. If using Spot mode, the Spot dialog opens, where you can enter the new location for the clip’s start or end point.

Time Compression/Expansion Trim Tool

The Time Compression/Expansion Trim tool (TCE Trim) is a convenient tool for matching an audio clip to the length of another clip, a tempo grid, a video scene, or to practically any other reference point you want.



Time Compression/Expansion Trim tool over a clip

⚠ *The TCE Trim tool unloops and consolidates looped clips.*

💡 *You can match an Edit selection to the length of a Timeline selection by selecting **Edit > TCE Edit to Timeline Selection** command (see “TCE (Time Compression and Expansion) Edit To Timeline Selection” on page 608).*

Elastic Audio TCE Trim Tool

On Elastic Audio-enabled tracks, the TCE tool uses the track’s selected Elastic Audio plug-in (Real-Time or Rendered) to apply Real-Time or Rendered Elastic Audio processing. The resulting clip displays a Warp indicator to indicate Elastic Audio processing.

📖 *For information on Elastic Audio plug-ins, see “Elastic Audio Plug-Ins” on page 882.*

AudioSuite TCE Trim Tool

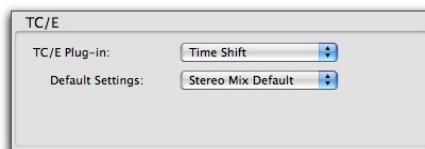
On audio tracks without Elastic Audio enabled, the Time Compression/Expansion Trim tool works by using the Time Compression/Expansion (TCE) AudioSuite plug-in selected in the Pro Tools Processing preferences to create a new audio file.

Time Compression/Expansion Plug-In Preferences

You can select which AudioSuite plug-in is used for trimming with the TCE Trim tool on non-Elastic Audio-enabled audio tracks.

To set the AudioSuite plug-in for use with the TCE Trim tool:

- 1 Choose Setup > Preferences.
- 2 Click the Processing tab.
- 3 From the TC/E Plug-In pop-up menu, select the AudioSuite plug-in to be used with the Time Compression/Expansion Trim tool.




TC/E Preferences

- 4 From the Default Settings pop-up menu, select the plug-in setting best suited to the material you work with most (such as Stereo Mix Default).
- 5 Click OK.

📖 *For more information about AudioSuite plug-ins, see Chapter 39, “AudioSuite Processing.”*

Using the TCE Trim Tool in Grid Mode

The TCE Trim tool can be used in Grid mode to match a clip to the tempo of a session or a section of a session. For example, you might import a one-bar drum loop with a tempo of 90 BPM into a session with a tempo of 120 BPM. In Grid mode, you can use this tool to simply and quickly “time compress” the drum loop to the length of one measure, with no noticeable to minimal loss of audio fidelity.

 *Trimming clips while in Relative Grid mode will trim the clips in grid increments while maintaining their relative offset (if any) from the grid.*

To use the TCE Trim tool in Grid mode:

- 1 Set the Edit mode to Grid.
- 2 Do one of the following:
 - Click the Trim tool pop-up menu and select TCE.



Time Compression/Expansion Trim tool

- Right-click on any track and select Tools > Trim Tools > TCE.
- 3 With the TCE Trim tool, drag the audio clip’s start or end point to compress or expand the clip to the Grid (for example, by quarter notes).

Using the TCE Trim Tool in Slip Mode

To use the TCE Trim tool in Slip mode:

- 1 Set the Edit mode to Slip.
- 2 Click the Trim tool pop-up menu and select TCE.
- 3 With the TCE Trim tool, drag the clip’s start or end point to compress or expand the clip freely.

Using the TCE Trim Tool in Spot Mode

In Spot mode, clicking with the TCE Trim tool in a clip opens the Spot dialog. You can specify the location you want the clip to start or end at, or the duration of the clip, and the clip is automatically compressed or expanded as specified.

To use the TCE Trim tool in Spot mode:

- 1 Set the Edit mode to Spot.
- 2 Click the Trim tool pop-up menu and select TCE.
- 3 Click the clip near its start or end point. The Spot dialog opens. Using any Time Scale, enter a new start or end time (or duration) for the clip, then click OK.

Scrub Trim Tool

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

The Scrub Trim tool is a convenient tool for auditioning material (on up to two tracks) to find a trim point. You can drag in a track to hear the audio information, then trim at a specific location by releasing the mouse button.

This action creates a new clip. Note that the Scrub Trim tool changes into a “right trim” or “left trim” shape as it is placed over the right or left side of a clip. To reverse the direction of the Scrub Trim tool, press Alt (Windows) or Option (Mac) before you click the clip.



Scrub Trim tool over a clip

Scrub playback speed and direction vary with controller movement. Scrubbed audio is routed through the track signal path, so you hear any effects in the signal path.

To scrub trim a track:

- 1 Do one of the following:
 - Click the Trim tool pop-up menu and select Scrub.
 - Right-click on any track and select Tools > Trim Tools > Scrub.

The tool changes to a speaker with a bracket.

- 2 Drag within a track to the left or right. Audio from a scrubbed track is routed through the track signal path, including any DSP (AAX and TDM) effects. When you locate the trim point, release the mouse button to trim the clip.

- To scrub trim two tracks, drag with the Scrub Trim tool between two adjacent tracks.
- To scrub with finer resolution (without having to zoom in), press Control (Windows) or Command (Mac) while scrubbing.

Loop Trim Tool

Use the Loop Trim tool to create or trim looped clips (see “*Clip Looping*” on page 843).

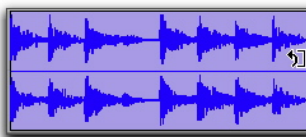


Loop Trim tool

Creating Loops with the Loop Trim Tool

To create loop clips using the Loop Trim tool:

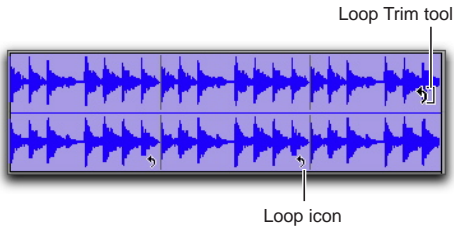
- 1 Do one of the following:
 - Click the Trim tool pop-up menu and select Loop.
 - Right-click on any track and select Tools > Trim Tools > Loop.
- 2 Position the cursor over the top half of an unlooped audio or MIDI clip, or clip group. The cursor changes to indicate that you can loop trim the clip. (Positioning the cursor over the bottom half of the clip results in the Standard Trim cursor.)



Loop Trim cursor

3 Do one of the following:

- Click at the end of the clip, and drag left or right to the point you want the loop to stop.
- Click at the beginning of the clip, and drag left or right to the point you want the loop to start.



Looped clip

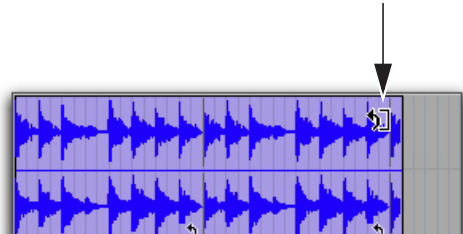
Trimming Looped Clips

You can trim looped clips in two ways:

- Loop Trim a looped clip to change how long the clip is looped. For example, Loop Trim a looped clip from 2 bars to four bars. With a 1 bar clip, the number of loops changes from 2 to 4. Each loop iteration remains the same length, but the length of the entire looped clip changes.
- Trim the source clip (loop iteration) while keeping the overall loop length unchanged. The number of loop iterations within the looped clip changes accordingly. For example, trim a 2 bar loop iteration of a 4 bar looped clip to 1 bar. The 4 bar looped clip remains constant, but the number of loop iterations changes from 2 to 4. Each loop iteration's length changes, but how long the clip is looped does not.

To Loop Trim a looped clip:

- 1 Select the Loop Trim tool.
- 2 Move the cursor over the top half of the looped clip (not over a Loop icon). The cursor indicates the Loop Trim tool.



Loop Trim tool

- 3 Trim the looped clip.



Loop trimming a looped clip

The number of loops increases or decreases to fill the new length of the entire looped clip.



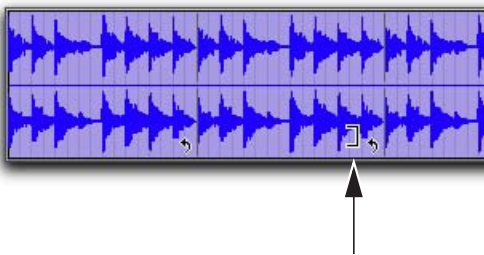
Hold the Start key (Windows), or the Control key (Mac) while trimming to trim in loop iteration increments.



Trimming a looped clip does not trim any underlying Fades.

To trim the source clip (loop iteration) of a looped clip:

- 1 Select the Loop Trim tool.
- 2 Move the cursor over a Loop icon in the looped clip, or anywhere along the bottom of the clip. The cursor indicates the Trim tool icon.



Loop Trim tool

- 3 Trim the start or end of the loop iteration.



Trimming a looped clip

The number of trimmed loop iterations increases or decreases to fill the original length of the entire looped clip.



Trimmed looped clip

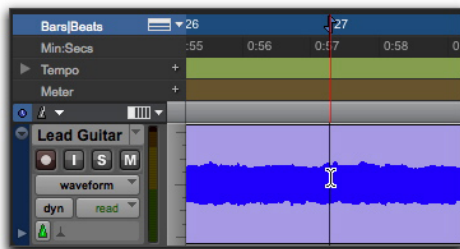
Using the Selector Tool

Use the Selector tool to place the edit cursor in a track or Timebase ruler, or to make Timeline selections or Edit selections on tracks.

Placing the Edit Cursor

To place the edit cursor with the Selector tool:

- 1 Select the Selector tool in the Edit window.
- 2 Click the location in a track or on a Timebase ruler.

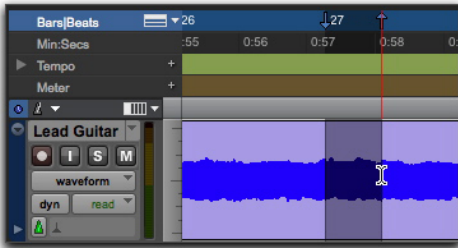


Placing the edit cursor with the Selector tool

Making an Edit Selection with the Selector Tool

To make an Edit selection with the Selector tool:

- 1 Select the Selector tool in the Edit window.
- 2 Do one of the following:
 - To make an Edit selection in a single track, drag in the track.
 - To make an Edit selection across multiple tracks, drag across the tracks.
 - If Link Timeline and Edit Selection is enabled, drag on the Timebase ruler to make an Edit selection across all tracks.



Making a selection with the Selector tool

To select an entire clip with the Selector tool:

- 1 Select the Selector tool in the Edit window.
- 2 Double-click a clip on a track.

To select an entire track with the Selector tool:

- 1 Select the Selector tool in the Edit window.
- 2 Triple-click in the track.

Making a Timeline Selection with the Selector Tool

To make a Timeline selection with the Selector tool:

- 1 Select the Selector tool in the Edit window.
- 2 Do one of the following:
 - Drag on a Timebase ruler.
 - If Link Timeline and Edit Selection is enabled, drag in a track.

Using the Grabber Tools

Use the Grabber tools to select, move, separate, and arrange clips on tracks. There are three modes for the Grabber tool: Time Grabber, Separation Grabber, and Object Grabber. For more information about arranging clips, also see Chapter 37, “Arranging Clips.”

Time Grabber Selects an entire clip on a track with a single click. For more information on selecting clips, see “Selecting Track Material” on page 567.



Time Grabber tool

Separation Grabber Cuts and pastes an Edit selection from one location to another by dragging. For more information, see “Separation Grabber Tool” on page 590.



Separation Grabber tool

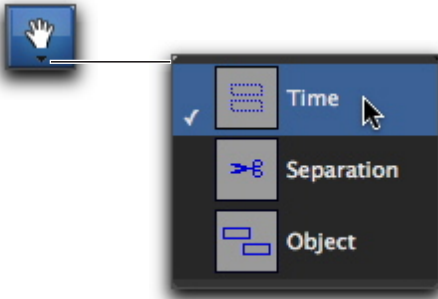
Object Grabber Lets you select multiple, noncontiguous clips. For more information, see “Object Selections” on page 569.



Object Grabber tool

To select one of the Grabber tools, do one of the following:

- Click the Grabber tool in the Edit window and select the Grabber tool from the pop-up menu.



Selecting a Grabber tool

- Right-click on any track and select the Grabber tool from Tools > Grabber Tools.

Using the Smart Tool

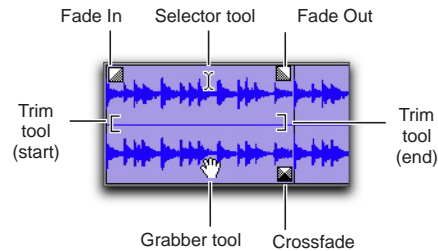
With the Smart Tool, you can instantly access the Selector, Grabber, and Trim tools, and you can also perform fades and crossfades. The position of the cursor in relation to a clip or note, or within an automation playlist, determines how the Smart Tool functions.



Smart Tool enabled in the Edit window

To select the Smart Tool, click its icon in the upper left of the Edit window, or press F6+F7 (or F7+F8) simultaneously.

The Smart Tool in Waveform View (Audio) or Clips View (MIDI)



Smart Tool in Waveform view

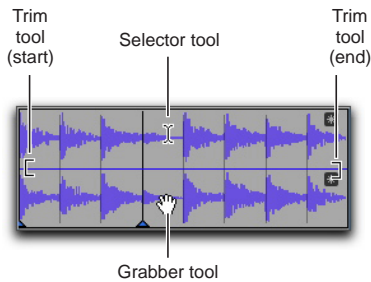
The following capabilities are available with the Smart Tool when working with audio tracks in Waveform or Blocks view, or MIDI or Instrument tracks in Clips view:

- ◆ For the Selector tool, position the cursor over the middle of the clip, in the upper half of the clip.
- ◆ For the Grabber tool, position the cursor over the middle of a clip, in the lower half of the clip.
- ◆ For the Trim tool, position the cursor near the clip's start or end point.
- ◆ For a fade-in or fade-out, position the cursor near an audio clip's start or end point, near the top of the clip. Once the Fade cursor appears, drag into the clip to set the fade length. The fade is created automatically with the Default Fade Settings (in the Editing Preferences page).
- ◆ For a crossfade, position the cursor between two adjacent audio clips, near the bottom of the clip. Once the Crossfade cursor appears drag left or right to set the crossfade length. The crossfade is created automatically with the Default Fade Settings (in the Editing Preferences page).



To temporarily switch the Smart Tool to the Scrubber, place the cursor over the clip so that the Selector tool is enabled, then press *Start* (Windows) or *Control* (Mac).


The Smart Tool in Warp View



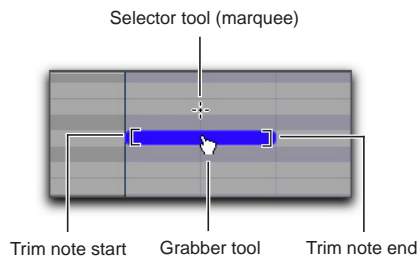
Smart Tool in Warp view

The following capabilities are available with the Smart Tool when working with Elastic Audio-enabled audio tracks in Warp view, or MIDI or Instrument tracks in Clips view:

- ◆ For the Selector tool, position the cursor over the middle of the clip, in the upper half of the clip.
- ◆ For the Grabber tool, position the cursor over the middle of a clip, in the lower half of the clip, but not over an Event marker or Warp marker.
- ◆ For Elastic Audio warping, position the cursor over an Event marker or a Warp marker, in the lower half of the clip (for more information on warping audio, see “Editing in Warp View” on page 887).
- ◆ For the Trim tool, position the cursor near the clip’s start or end point, in the upper half of the clip.

 To temporarily switch the Smart Tool to the Scrubber, place the cursor in the upper half of the clip so that the Selector tool is enabled, then press Start (Windows) or Control (Mac).

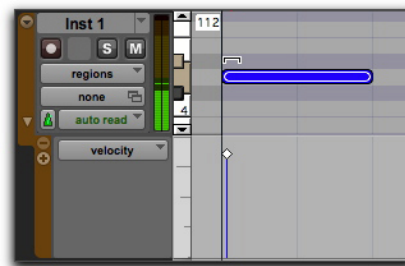
The Smart Tool in Notes View




Smart Tool in Notes view

The following capabilities are available with the Smart Tool when working with MIDI and Instrument tracks in Notes view in the Edit window and in MIDI Editor windows:

- ◆ For the Marquee Selector, position the cursor so it does not cover any notes.
- ◆ For the Grabber tool, position the cursor over the note, near its middle.
- ◆ For the Trim tool, position the cursor near the note start or end point.
- ◆ For the Velocity Trim tool, position the cursor over the note and press Control (Windows) or Command (Mac).



Trimming the velocity of a note

 To temporarily switch the Smart Tool to the Pencil tool, press Start (Windows) or Control (Mac).



To temporarily switch the Smart Tool to the Eraser, press Alt+Start (Windows) or Option+Control (Mac).

The Smart Tool in Automation and Controller Views

The following capabilities are available with the Smart Tool when working in both automation and controller views:

- ◆ For the Selector tool, position the cursor anywhere in the bottom 75% of the playlist for the Selector tool. Drag with the Selector tool to select breakpoints.
- ◆ For Trim tools, position the cursor in the top 25% of the playlist for the Trim tool. Drag with the Trim tool to trim breakpoints. Press Control (Windows) or Command (Mac) while trimming for fine control.
- ◆ For Grabber tools, Control (Windows) or Command (Mac) for the Grabber tool, then click in on the automation line to create breakpoints.
- To edit existing breakpoints, move the cursor near a breakpoint for the Grabber tool.
- For fine control with the Grabber tool, press Control (Windows) or Command (Mac)—or continue to hold the key if you are creating a new breakpoint.
- To vertically constrain Grabber tool movement, press Shift.
- To vertically constrain Grabber tool movement with fine control, press Control+Shift (Windows) or Command+Shift (Mac).

The Smart Tool with Stereo and Multichannel Tracks

When using the Smart Tool on stereo and multichannel tracks, individual channels cannot be independently edited. All edits affect all channels as a whole.

Tool switching for the Smart Tool in stereo and multichannel tracks is determined by the position within the entire track, and not within individual channels.

Using the Scrubber Tool

The Scrubber tool lets you “scrub” up to two tracks of audio in the Edit Window. Scrubbing is a technique that originated in tape editing, where the tape was rocked back and forth past the playhead at slower than normal speeds to find a particular location (usually for cutting and splicing).

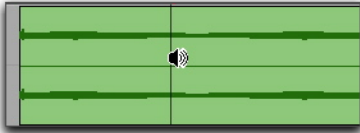
While viewing an audio waveform in Pro Tools can be helpful in visually finding an edit point, sometimes a waveform display (because of its sonic characteristics) may not reveal the desired spot in the audio material. By scrubbing back and forth in Pro Tools, you can listen and locate an exact edit point.

When the Edit Insertion Follows Scrub/Shuttle option is enabled in the Operation Preferences page, the edit cursor automatically locates to the point where scrubbing stops.

When the Scrolling option is set to Continuous (Pro Tools HD and Pro Tools with Complete Production Toolkit only) or Center Playhead (Pro Tools HD only), clicking with the Scrubber in a track’s playlist centers the Edit window around that point, and moves the Playhead there. With these Scrolling Options, scrubbed material moves past the Playhead, which remains stationary and centered.

To scrub a single audio track:

- 1 Select the Scrubber tool.
- 2 Drag within the track: left for reverse or right for forward.



Scrubbing an audio track with the Scrubber

The distance and speed with which you drag (with either the mouse, or the scrub wheel on a control surface) determine the length and speed of the scrubbed audio. Audio from the scrubbed track is routed to its output, along with any effects assigned to the track.

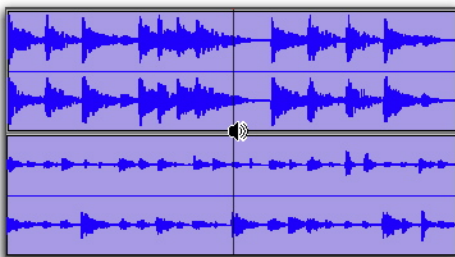
The resolution for the Scrubber is dependent on the zoom factor for the scrubbed track.



You can temporarily switch the Selector tool to the Scrubber tool by Start-clicking (Windows) or Control-clicking (Mac). For finer resolution, Control-Start-click (Windows) or Command-Control-click (Mac).

To scrub multiple audio tracks, do one of the following:

- With the Scrubber selected, drag between two adjacent tracks.



Scrubbing between two audio tracks

- Scrub within a selection that contains multiple tracks.

When scrubbing multiple tracks, only the first two tracks are heard.



The maximum number of channels scrubbed in Pro Tools is eight, which lets you scrub a 7.1 track, two stereo tracks (four channels), but not two 5.1 surround tracks (12 channels).

Scrub/Shuttle Mode

When scrubbing normally, you can scrub at normal playback speeds or slower. Scrub/Shuttle mode, however, lets you scrub at several times normal speed, which is helpful in playing through large ranges and locating material.

To scrub in Shuttle mode (at several times normal speed):

- 1 Select the Scrubber tool.
- 2 While pressing Alt (Windows) or Option (Mac), drag within the track—left for reverse, right for forward. The Fast Forward and Rewind buttons in the Transport window engage.

The distance and speed dragged determine the speed for the scrubbed audio.

Shuttle Lock Mode

Shuttle Lock mode lets you use the numeric keypad to shuttle up to two tracks forward or backwards at specific speeds: 5 is normal speed, numbers from 6 up to 9 provide increasingly faster fast-forward speeds, and numbers from 4 down to 1 provide progressively faster rewind speeds (4 is the slowest rewind Shuttle Lock speed, 1 is the fastest). If multiple tracks are selected, only the first two tracks are shuttled.

To play one or two tracks with the shuttle lock:

- 1 With Pro Tools HD, make sure the Operation preference for Numeric Keypad mode is not set to Shuttle (see “Operation Preferences” on page 128).
- 2 With the Selector tool, click in the track where you want playback to begin. To shuttle on two tracks, Shift-click in a second track.
- 3 Press the Start key (Windows) or Control (Mac) and a number on the numeric keypad: 0–9 (9 is fastest, 5 is normal speed, and 0 stops shuttling).

Once Shuttle Lock mode is initiated, Fast Forward and Rewind become highlighted in the Transport window.

- 4 Press additional keys to change the playback speed, or press Plus (+) or Minus (–) to switch the playback direction (plus for forward, minus for backward).
- 5 To stop playback, press Start+0 (Windows) or Control+0 (Mac).

To exit Shuttle Lock mode, do one of the following:

- Press Stop in the Transport window.
- Press the Spacebar.

Custom Shuttle Lock Speed

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

Use the Custom Shuttle Lock Speed preference to customize the highest fast-forward Shuttle Lock speed (key 9) to better match your editing and auditioning needs.

To configure Custom Shuttle Lock Speed:

- 1 In Pro Tools, select Setup > Preferences and click the Operation tab.
- 2 Be sure that the Numeric Keypad mode is set to Transport or Classic (see “Operation Preferences” on page 128).
- 3 Enter a percentage for the Custom Shuttle Lock Speed setting. The range for this setting is 50–800%. You can use the Up and Down Arrow keys to increase or decrease the setting.
- 4 Click OK.

The Custom Shuttle Lock Speed setting is saved with your Pro Tools system preferences (not with the session).

To enable Custom Shuttle Lock Speed:

- Press Start+9 (Windows) or Control+ 9 (Mac) on the numeric keypad.

Numeric Keypad Set to Shuttle

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

Pro Tools offers another form of shuttling, different from that of Shuttle Lock mode. With the Numeric Keypad mode set to Shuttle, playback of the current Edit selection is triggered by pressing and holding the keys on the numeric keypad—playback stops once the keys are released. Various playback speeds are available in both forward and reverse. In this mode, pre- and post-roll are ignored.

To shuttle with the Numeric Keypad mode set to Shuttle:

- 1 Choose Setup > Preferences and click the Operation tab.
- 2 Set the Numeric Keypad mode to Shuttle and click OK.
- 3 With the Selector tool, click in the track where you want playback to begin. To shuttle on two tracks, Shift-click in a second track.
- 4 Hold any of the following keys (or key combinations) on the numeric keypad to trigger playback.

Shuttle Speed	Rewind Key	Forward Key
1 X Speed	4	6
4 X Speed	7	9
1/4 X Speed	1	3
1/2 X Speed	4+5	5+6
2 X Speed	7+8	8+9

- 5 Press a different key to switch the playback direction or speed. Release to stop.

Using the Pencil Tool

The Pencil tool lets you draw several types of Pro Tools data:

- Audio waveforms (see “Waveform Repair with the Pencil Tool” on page 562)
- MIDI data (see “Using the Pencil Tool” on page 678)
- Tempo changes (see “Editing Tempo Events in the Tempo Editor” on page 777)
- Automation (see “Drawing Automation” on page 1046).

Waveform Repair with the Pencil Tool

On audio tracks, the Pencil tool lets you destructively “redraw” waveform data. This tool is most commonly used to repair a pop or click in an audio file. A pop or click appears as a sudden sharp spike in a waveform. This tool only becomes active when the Edit window is zoomed in to the sample level.

Although you can Undo a Pencil tool edit, it is recommended that you create a backup copy of the target audio before using the Pencil tool. You can do this by using the AudioSuite Duplicate plug-in.




The Pencil tool is a destructive editing tool that permanently modifies the audio file on disk and should be used with caution.



For information about the AudioSuite Duplicate plug-in, see the Audio Plug-Ins Guide.

To destructively edit an audio waveform with the Pencil tool:

- 1 Locate the area you want to edit.
- 2 Using the Zoomer tool or the Zoom buttons, zoom down to the sample level so the waveform appears as a continuous thin line. Adjust the Track Height, as necessary, to edit the waveform with greater precision. You can also use vertical zoom for greater visual resolution.

 You can recall zoom levels with the Zoom Preset buttons (see “Zooming Options” on page 540), or with Memory Locations (see “Recalling Memory Locations” on page 812). The default setting for Zoom Preset 5 is at the sample level for Pencil editing.

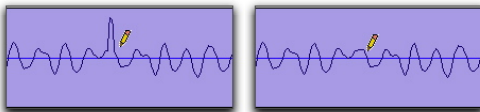
- 3 Select the Pencil tool.



Pencil tool

- 4 Carefully draw with the Pencil tool by dragging over the area of the waveform.

Do not over-edit or the results may be undesirable. However, you can use the Undo command to undo your previous edit.



Repairing a “pop” with the Pencil tool

The Pencil tool can independently edit different channels of a multichannel track.

Try to limit editing to smoothing over a very small problem area, and keep the “fixes” in character with the shape of the surrounding waveform.

Edit/Tool Mode Keyboard Lock

Enable Options > Edit/Tool Mode Keyboard Lock to lock the currently selected Edit Tools (Zoom, Trim, Grabber, and Pencil only) in place and prevent them from being inadvertently changed when using keyboard shortcuts. However, even when Edit/Tool Mode Keyboard Lock is enabled, Edit Tool types can still be changed using the mouse or by using the Right-click menu. You can also switch between tools (such as switching from the Grabber to the Trim) using keyboard shortcuts.

To lock (or unlock) the current Edit Tool modes:

- 1 Select the Edit Tool modes you want (such as the Standard Trim tool, Time Grabber tool, and the Free Hand Pencil tool).
- 2 Select (or deselect) Options > Edit/Tool Mode Keyboard Lock.

Chapter 26: Making Selections

Pro Tools provides many tools for selecting material in the Edit window.

Linking or Unlinking Timeline and Edit Selections

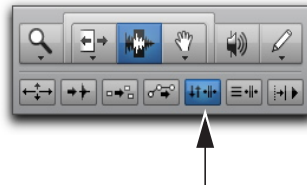
Pro Tools lets you link or unlink the Timeline and Edit selections.

When the Timeline and Edit selections are linked, selecting in a track's playlist (making an Edit selection) also defines the play and record range (the Timeline selection).

Unlinking Timeline and Edit selections lets you make a selection within a track for editing purposes that is distinct from the selection in the Timeline (which determines the playback and recording range).

To link or unlink the Timeline and Edit selections, do one of the following:

- Select or deselect Options > Link Timeline and Edit Selection.
- In the Edit window, a MIDI Editor window, or the Score Editor window, click the Link Timeline and Edit Selection button so it becomes highlighted (selected) or un-highlighted (not selected). Enabling or disabling the Link Timeline and Edit Selection button in any editor window affects all editor windows.



Link Timeline and Edit Selection button enabled in the Edit window

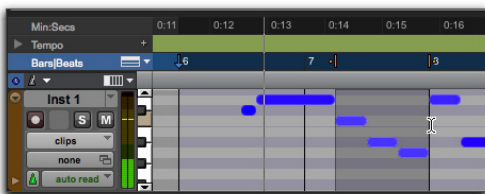


Press Shift+Forward Slash (/) to toggle Link Timeline and Edit Selection on and off.

If you are working on a film or video scene, you may want to unlink the Timeline and Edit selections to find or audition material that is at a different location than the current Timeline selection. Edit selections can be played (choose Edit > Selection > Play Edit) without disrupting the current Timeline selection. Once you find the material, you can then go back to the Timeline selection and place it within the context of the scene.

The following figure illustrates another reason why you might want to unlink the Timeline and Edit selections. In this example, the Timeline selection sets a range to be looped on playback, while a MIDI clip (residing within the loop) is selected for editing purposes.

During playback, the Edit selection can be nudged, quantized, or transposed while the loop plays back completely independent and uninterrupted.

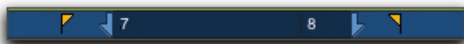


Timeline and Edit selections unlinked

While you could theoretically do this with the Timeline and Edit selections linked, as soon as playback is stopped, the playback range would then be updated to that of the more recent edit range, or to a single note when editing MIDI.

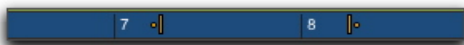
Timeline and Edit Selection Markers

Timeline selections are displayed in the Main Timebase ruler with *Timeline Selection Markers*, which appear as blue arrows (red when recording). In addition, there are *Pre- and Post-Roll Flags* (which are green when enabled) indicating the location for pre- and post-roll.



Timeline Selection Markers with Pre- and Post-Roll Flags

When the Timeline and Edit selections are unlinked, Edit selections are displayed in the ruler with *Edit Markers*, which appear as black brackets.



Edit Markers

If the Timeline and Edit selections are linked, Edit selections are represented by the blue Timeline Selection Markers.

See the following topics for more information on working with Timeline and Edit selections:

- “Selecting Track Material” on page 567
- “Timeline Selections” on page 577
- “Setting Punch and Loop Points” on page 460
- “Setting Pre- and Post-Roll” on page 464

Linking or Unlinking Track and Edit Selections

Pro Tools lets you link or unlink Track selection with Edit selections.

When Track and Edit selections are linked, you can make a selection within a track or across multiple tracks for editing and each associated track is selected (track names automatically highlight). This lets you quickly apply track-level commands (such as Track View toggle, change track heights) and have the command apply to all tracks you are working on.

When Track and Edit selections are unlinked, making an Edit selection does not automatically select all associated tracks.

To link or unlink Track and Edit selection, do one of the following:

- Select or deselect Options > Link Track and Edit Selection.
- In the upper left of the Edit window, under the Edit tools, click the Link Track and Edit Selection button so it becomes highlighted (selected) or un-highlighted (not selected).

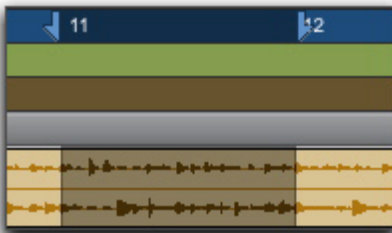


Link Track and Edit Selection enabled

Selecting Track Material

Before audio and MIDI material can be edited, it must first be selected. The Track View determines how the material is viewed and selected.

When you make a selection, it appears as a highlighted area of the tracks, and is also indicated by blue start and end arrows (*Timeline Selection Markers*) in the Main Timebase ruler. If any track (audio or MIDI) in the session is record-enabled, even if it is hidden, these markers appear red.



Timeline Selection Markers indicating Edit selection

If the Timeline and Edit selections are unlinked, the Edit selection range is indicated by Edit Markers in the Main Timebase ruler. See “Linking or Unlinking Timeline and Edit Selections” on page 565 for details.

Selections and Edit Groups

When making selections on tracks that are part of an Edit Group, all tracks within the group become selected.

Selections and Hidden Tracks

When editing tracks that are part of an active Edit Group, any tracks within the group that are hidden are not affected by the edits. To edit all members of a group, make sure they are visible by highlighting their names in the Track List.

Selections in Multiple Tracks

To make a selection in multiple tracks:

- With the Selector tool, drag vertically to include adjacent tracks in a selection (drag horizontally to define the time range).

Selecting Clips

To select a portion of a clip:

- With the Selector tool, drag within a clip (left or right) to select the material on a single track. (You can also use the Selector tool across multiple, adjacent tracks to make multitrack selections.)



Selecting a portion of a clip

To select an entire clip, do one of the following:

- Click the clip with the Time Grabber tool.
- Double-click the clip with the Selector tool.

To select two clips and the time range between them:

- 1 With the Time Grabber, click the first clip.
- 2 Shift-click the second clip. Both clips are selected, along with the time range between them (including any other clips).

To select an entire track, do one of the following:

- Click in the track with the Selector tool and then choose Edit > Select All.
- Triple-click with the Selector tool in the track.



Press Control+A (Windows) or Command+A (Mac) for Select All.

To select all clips in all tracks:

- 1 Select the “All” Edit Group in the Group List pop-up menu.
- 2 Do one of the following:
 - Click in any track with the Selector tool and choose Edit > Select All.
 - Triple-click with the Selector tool in any track.



Another way to select all clips in all tracks, without having to select the “All” Edit Group, is to press Enter (Windows) or Return (Mac), then press Control+A (Windows) or Command+A (Mac). The Link Timeline and Edit Selection option must be enabled.

Clip List Selection Follows Edit Selection

When the Editing preference for Clip List Selection Follows Edit Selection is enabled, selecting a clip in a track also causes the clip to become selected in the Clip List.

Conversely, if the Editing preference for Edit Selection Follows Clip List Selection is enabled, selecting a clip in the Clip List causes the initial occurrence of that clip to become selected within the track.

Selecting All from Timebase Rulers

To select all material in all displayed audio and MIDI tracks:

- 1 Enable Link Timeline and Edit Selection (Options > Link Timeline and Edit Selection).
- 2 Double-click in any Timebase ruler. All clips in all displayed audio and MIDI tracks are selected. Tracks that are hidden are not selected.

To select all material in all tracks, including Conductor events:

- 1 Enable Link Timeline and Edit Selection (Options > Link Timeline and Edit Selection).
- 2 While pressing Control (Windows) or Option (Mac), double-click in any Timebase ruler. All clips in all displayed audio and MIDI tracks are selected, including all events in each of the Conductor tracks.

Making Selections While Playing

Pro Tools lets you make selections during playback with the Up and Down Arrow keys.

To make a selection while playing:

- 1 Enable Link Timeline and Edit Selection (Options > Link Timeline and Edit Selection).
- 2 With the Selector tool, click somewhere near the beginning of the track in which you want to make the selection.
- 3 Click Play in the Transport window (or press the Spacebar) to begin playback.
- 4 When playback reaches the point where you want the selection to begin, press the Down Arrow key.
- 5 Press the Up Arrow key at the point where you want the selection to end. The selected range becomes highlighted.
- 6 To stop playback, click Stop in the Transport (or press the Spacebar).

To automatically scroll to the beginning of the selection (or to the location of the on-screen cursor), press the Left Arrow key. To scroll to the end of the selection, press the Right Arrow key.

While in Page Scroll or Continuous Scroll mode, making a selection in the Timeline or a playlist during playback as the playback cursor moves off-screen suspends page scrolling. To resume page scrolling and jump to the current playback location, click the Playback Cursor locator in the Main Timebase ruler (see “Locating the Playback Cursor when It Is Off-Screen” on page 416).

Object Selections

Use the Object Grabber tool to select noncontiguous clips on one or more tracks. Noncontiguous selections must encompass entire clips. If you want a noncontiguous selection to include a portion of a clip, first turn the portion into a new clip with the Separate Clip command (see “Separate Commands” on page 588).

A *The Object Grabber is not available when the Edit mode is set to Shuffle or Spot.*

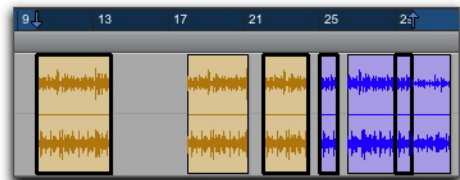
To select noncontiguous clips:

- 1 Set the Edit mode to either Slip or Grid.
- 2 Click the Grabber tools pop-up menu and select Object.



Object Grabber tool

- 3 Shift-click each clip you want to include in the selection. The clips can even reside on different tracks.



Noncontiguous selection

Each clicked clip is surrounded by a dark border, indicating it is selected.

The Object Grabber tool ignores Edit Groups when making selections. For instance, selecting a clip on a grouped track does not cause clips in the other tracks in the group to become selected.

Object to Time Selection

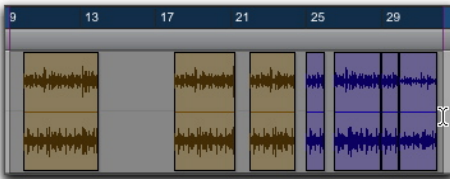
You can convert between Time- and Object-based selections. Time selections are made with the Selector and Time Grabber tools. Object selections are made with the Object Grabber tool.

Converting to an Object selection is useful when you are working with large selections, especially across multiple tracks, and you want to remove certain clips from the selection.

Converting to a Time selection is useful if you want to select all clips between a noncontiguous Object selection.

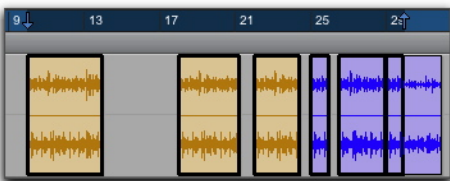
To change a Time selection to an Object selection:

- 1 Drag with the Selector tool in any track to define a selection, or select in a Timebase ruler to select across all tracks.



Selected clips

- 2 With the Object Grabber tool selected, double-click the Grabber icon in the toolbar. Clips falling within the selection range become selected as objects. Clips that were partially selected become deselected.



Clips selected as objects

To select clips that were partially selected, press Start (Windows) or Control (Mac) while double-clicking the Grabber icon.

To change an Object selection to a Time selection:

- 1 Select any number of clips with the Object Grabber tool.
- 2 Double-click the Selector tool in the toolbar. The time range between the first and last clip becomes selected.

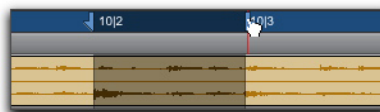
When using the Object Grabber tool on tracks that belong to an Edit Group, clips in the other grouped tracks are selected if they fall within the range of the selected clip.

Changing a Selection Length

The selection range can be shortened or lengthened. This does not affect the material within the selection.

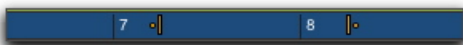
To change the length of a selection, do one of the following:

- With the Selector tool, position the cursor over one end of the current selection and Shift-click, or Shift-drag left or right.
- In the Main Timebase ruler, drag the Timeline Selection Marker for the selection's start or end point.



Dragging a Timeline Selection Marker

- If Link Timeline and Edit Selection is disabled, drag the Edit Marker to change the selection length.



Edit Markers

To make a long-length selection:

- 1 With the Selector tool, click at where you want the selection to start.
- 2 Scroll to the end point and Shift-click at the point where you want the selection to end.

To verify the start and end points of a long selection, press the Left Arrow key to scroll to the beginning of the selection, or press the Right Arrow key to scroll to the end.

Nudging a Selection Range

The selection range (not the material within the selection) can be moved by the Nudge value.

To nudge a selection range:

- 1 Configure the Nudge value. For details, see “Defining the Nudge Value” on page 595.
- 2 Make the initial selection with the Selector tool.
- 3 While pressing Shift, press Plus (+) or Minus (–) on the numeric keypad to move the selection range by the Nudge value.

Nudging Selection Start/End Points

Start and end points for selections can be moved by nudging them.

To move a selection start or end point by the Nudge value:

- 1 Configure the Nudge value. For details, see “Defining the Nudge Value” on page 595.
- 2 Make the initial selection with the Selector tool.
- 3 Do one of the following:
 - While pressing Alt+Shift (Windows) or Option+Shift (Mac), press Plus (+) or Minus (–) on the numeric keypad to move the selection’s start point by the Nudge value.
 - While pressing Control+Shift (Windows) or Command+Shift (Mac), press Plus (+) or Minus (–) on the numeric keypad to move the selection’s end point by the Nudge value.

Extending Selections

You can extend selections to clip start and end points, to include an adjacent clip, or to Markers and Memory Locations.

To extend a selection to a clip start or end point:

- 1 With the Selector tool, select a portion of a clip, or click anywhere in the clip.
- 2 Do one of the following:
 - Press Shift+Tab to extend the selection to the clip's end point.
 - Press Control+Shift+Tab (Windows) or Option+Shift+Tab (Mac) to extend the selection to the clip's start point.

To extend a selection to include an adjacent clip:

- 1 Select the first clip with the Time Grabber tool.
- 2 Do one of the following:
 - With Tab to Transients disabled, press Start+Shift+Tab (Windows) or Control+Shift+Tab (Mac) to extend the selection to the next clip boundary.
 - Press Control+Start+Shift+Tab (Windows) or Option+Control+Shift+Tab (Mac) to extend the selection to include the previous clip boundary.

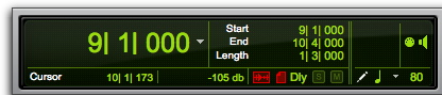
To extend a selection to a Marker or Memory Location: Location:

- 1 Do one of the following:
 - Click in a track with the Selector tool at the start or end point.
 - Make a selection with the Selector or Time Grabber tool.
- 2 Do one of the following:
 - Shift-click a Marker in the Markers ruler.
 - Shift-click a Memory Location in the Memory Locations window.

The selection is extended from the original Insertion point to the Marker or Memory Location.

Using the Edit Selection Indicators (Start, End, and Length)

The Edit Selection indicators at the top of the Edit window can define precise Edit selections. Time values for the Edit Selection indicators use the time format for the Main Time Scale.



Edit Selection indicators

To make a selection with the Edit Selection indicators:

- 1 Click with the Selector tool in the track you want to select.
- 2 Click in the Start field at the top of the Edit window.
- 3 Type in the start point for the selection and press the Forward Slash key (/) to enter the value and automatically move to the end field.
- 4 Type in the end point for the selection and press Enter to accept the value.

Numeric Entry Shortcuts for Selection Indicators

You can use the following shortcuts for entering values in the Edit Selection indicators:

- Press the Forward Slash (/) key to cycle through the three Edit Selection indicators.
- Use Period (.) or the Left and Right Arrow keys to move through the different time fields in each Edit Selection indicator.
- Press the Up or Down Arrow keys to increase or decrease numerical values.
- Move the mouse scroll wheel up or down to increase or decrease numerical values.
- Drag in a field to scroll to a new value. For finer resolution, Control-drag (Windows) or Command-drag (Mac).
- Press Control (Windows) or Command (Mac) and Plus (+) or Minus (–), then type a number, to add or subtract from the current field value. For example, to add 10 to a current field value, press Control (Windows) or Command (Mac) and Plus (+) key, type “10,” and press Enter.
- Press Escape to exit the Edit Selection indicators without entering any values.



These shortcuts can also be used to enter start and end values in the Transport window.

Calculator Entry Mode

You can perform calculator-style editing of values in the Edit Selection indicators.

To subtract time values:

- 1 In the Edit Selection indicator, highlight the time field you want to change.
- 2 Press Minus (–) on the numeric keypad.
- 3 Type the amount you want to subtract from the current time value, then press Enter.
- 4 Press Enter again to apply the change.

To add time values:

- 1 In the Edit Selection indicator, highlight the time field you want to change.
- 2 Press Plus (+) on the numeric keypad.
- 3 Type the amount you want to add to the current time value, then press Enter.
- 4 Press Enter again to apply the change.

Selecting Across Multiple Tracks

To perform edits across multiple tracks or all tracks, you must first select the tracks. Do this by including other tracks in the selection, or by selecting in a Timebase ruler (for all tracks).

To make a selection in multiple tracks:

- With the Selector tool, drag vertically to include adjacent tracks in a selection (drag horizontally to define the time range).

To extend a selection to another track:

- 1 Using the Selector or Time Grabber tool, make a selection in the first track or tracks.
- 2 Shift-click in additional tracks with the Selector tool. An identical range is selected for each additional track.

To shorten or lengthen the selection across each of the tracks, press Shift while dragging to change the range of the selection.

To select across all tracks, do one of the following:

- Enable the *All Edit Group* and make a selection in any track.
- Drag with the Selector tool in any Timebase ruler (make sure the Timeline and Edit Selections are linked).

These selections include all tracks in the Edit window, but do not include the Conductor tracks (for Tempo, Meter, and Markers).

To select across all tracks, including the Conductor tracks (for Tempo, Meter, and Markers):

- Alt-drag (Windows) or Option-drag (Mac) with the Selector tool in any Timebase ruler.

Moving and Extending Selections Between Tracks

With *Commands Keyboard Focus* enabled, Edit selections can be moved or extended to adjacent tracks.

To move a selection to an adjacent track:

- 1 Enable *Commands Keyboard Focus* (see “Keyboard Focus” on page 30).



Commands Keyboard Focus button enabled

- 2 With the Selector or Time Grabber tool, make a selection.

- 3 Do one of the following:

- Press P on your computer keyboard to move the selection to the previous track.
- Press semicolon (;) to move the selection to the next track.

In either instance, the original Edit selection becomes deselected.



With Commands Keyboard Focus disabled, press Start+P (Windows) or Control+P (Mac) to move the selection to the previous track, or Start+Semicolon (;) (Windows) or Control+Semicolon (;) (Mac) to move the selection to the next track.

To extend a selection to an adjacent track:

- 1 Enable *Commands Keyboard Focus* (see “Keyboard Focus” on page 30).
- 2 With the Selector or Time Grabber tool, make a selection.
- 3 Do one of the following:
 - Press Shift+P to extend the selection to the previous track.
 - Press Shift+Semicolon (;) to extend the selection to the next track.

In either instance, the original Edit selection remains selected.



With Commands Keyboard Focus disabled, press Start+Shift+P (Windows) or Control+Shift+P (Mac) to extend the selection to the previous track, or Start+Shift+Semicolon (;) (Windows) or Control+Shift+Semicolon (;) (Mac) to extend the selection to the next track.

To remove the bottom track from a selection:

- Press Alt+Start+Semicolon (;) (Windows) or Option+Control+Semicolon (;) (Mac) to remove the bottom track.

Other Useful Selection Techniques

Following are some additional selection techniques.

To position the edit cursor precisely at a clip start, end, or sync point:

- 1 Make sure the Tab to Transients button is not enabled. (See “Tabbing to Transients” on page 576.)
- 2 Click with the Selector tool in the track.
- 3 Do one of the following:
 - Press Tab to move the cursor to the next clip or clip group start, end, or sync point.
 - Press Control+Tab (Windows) or Option+Tab (Mac) to move the cursor to the previous clip or clip group start, end, or sync point.

To make a selection with the Scrubber:

- 1 Choose Setup > Preferences and click the Operation tab.
- 2 Select the option for “Edit Insertion Follows Scrub/Shuttle,” then click OK.
- 3 Scrub with the Scrubber to find an appropriate start point for the selection, then release.
- 4 While pressing Shift, scrub to an appropriate end point for the selection, then release. The range between the initial and final scrub becomes selected.

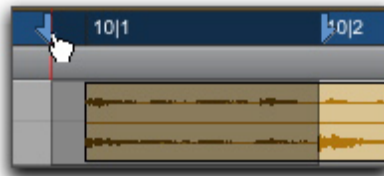
To move a selection to an adjacent clip on the same track:

- 1 Select a clip with the Time Grabber.
- 2 Do one of the following:
 - Press Start+Tab (Windows) or Control+Tab (Mac) to move the selection to the next clip.
 - Press Control+Start+Tab (Windows) or Option+Control+Tab (Mac) to move the selection to the previous clip.

In either instance, the original clip becomes deselected.

To slide an Edit selection in the Main Timebase ruler:

- 1 With the Selector or Time Grabber tool, make a selection.
- 2 While pressing Alt (Windows) or Option (Mac), move the cursor over either of the Timeline Selection Markers in the ruler (the Time Grabber appears).



Sliding an Edit selection in the Main Timebase ruler

- 3 Drag left or right to move the Edit selection back or forward in time while preserving its length.

If Link Timeline and Edit Selection is disabled (Options > Link Timeline and Edit Selection), Alt-drag (Windows) or Option-drag (Mac) the Edit Markers instead.

Right-Click Commands and Selection Preservation

You can use Right-click commands with key combinations to perform operations on objects while maintaining selections in the Edit and Mix windows. For example, you can maintain selections in the following areas while carrying out certain commands:

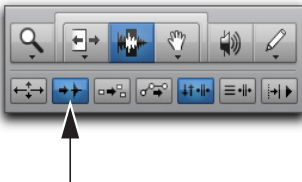
- Clip selections in the Timeline
- Clip name selections in the Clip List
- Track selections

To apply a command to an object while keeping the current selection:

- Control-Right-click (Windows) or Command-Right-click (Mac) the object and choose a command from the pop-up menu.

Tabbing to Transients

With the Tab to Transients button enabled, you can automatically navigate to transients in audio waveforms in Waveform view, placing the cursor just before the detected transient peak. This lets you define selections and play ranges, as well as start and end points for new clips, without having to zoom in on the waveform.



Tab to Transients button enabled

In Warp view, Tab to Transients tabs to all Event and Warp markers in a clip. Normal Tab tabs to clip boundaries and all Warp markers. In Analysis view, pressing Tab always tabs to Event markers, regardless of whether or not Tab to Transients is enabled.

For MIDI and Instrument tracks in Notes view, pressing Tab always tabs to the next note, regardless of whether or not Tab to Transients is enabled. In Clips view, Tab to Transients tabs to notes and Normal Tab tabs to clip boundaries.

For MIDI notes, when tabbing to chords, each note in the chord is recognized as a single event. This lets you tab to each note in the chord.

When Tab to Transients is enabled, the Tabbing function also locates the cursor to clip start and end points, but not to sync points.



To toggle Tab to Transients on and off, press Control+Alt+Tab (Windows) or Command+Option+Tab (Mac).

To set the start and end points of a selection with Tab to Transients:


- 1 In the upper left of the Edit window, click the Tab to Transients button so it becomes selected.
- 2 If you will be setting the play range with this selection, enable Options > Link Timeline and Edit Selection.
- 3 Click in the audio track just before the beginning of the material you want to select.
- 4 Press Tab repeatedly until the cursor locates to the transient where you want to start the selection.

If necessary, you can move to the previous transient by pressing Control+Tab (Windows) or Option+Tab (Mac).

- 5 Press Shift+Tab until the cursor locates to the end of the material you want to select.

To move the selection end point to the previous transient, press Control+Shift+Tab (Windows) or Option+Shift+Tab (Mac).

Once selected, the material can be looped for re-recording or playback, or it can be turned into a new clip with the Separate or Capture command.

 *Peak transients are usually visible in the waveform. However, some low-frequency transients may not appear as visible peaks in the waveform.*

Tab to Transients Across Multiple Tracks

With the edit cursor inserted across multiple tracks, you can use Tab to Transients to tab to the next transient on any of those tracks. When transients on multiple tracks are closely aligned, Tab to Transients tabs to the first transient on any of those tracks.

Timeline Selections

With the Link Timeline and Edit Selection option disabled, selections can be made in the Timeline that are distinct and separate from Edit selections.

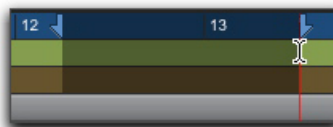
With the Timeline and Edit selections linked, any Edit selections that are made are mirrored in the Timeline, and any Timeline selection is mirrored as an Edit selection across all tracks.

Whether the Timeline and Edit selections are linked or not, the range indicated by the Timeline Selection Markers always determines the range for playback and recording (except when in Dynamic Transport mode, see “Dynamic Transport Mode” on page 425).

With Pro Tools HD, when the Scrolling option is set to Center Playhead, it determines where playback begins (see “Playing Timeline and Edit Selections with the Playhead” on page 423).


To make a Timeline selection with the Selector tool:

- 1 If you want to constrain the selection to the current Grid value, set the Edit mode to Grid.
- 2 Drag with the Selector tool in any Timebase ruler.



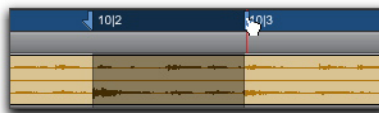
Making a Timeline selection with the Selector tool

The Timeline selection is indicated in the Main Timebase ruler by the blue Timeline Selection Markers (or if a track is record-enabled, the Timeline Selection Markers are red). The start, end, and length for the Timeline selection is displayed in the corresponding fields in the Transport window.

 *To select all tracks, including Conductor tracks, press Alt (Windows) or Option (Mac) while dragging in a Timebase ruler with the Selector tool.*

To set the Timeline selection by dragging the Timeline Selection Markers:


- 1 If you want to constrain movement to the current Grid value, set the Edit mode to Grid.
- 2 With the Time Grabber, drag the first Timeline Selection Marker (down arrow) to set the start point.
- 3 Drag the other Timeline Selection Marker (up arrow) to set the end point.



Dragging a Timeline Selection Marker

To set the Timeline selection by typing into the Transport window:

- 1 If necessary, resize the Transport window to Expanded view so the start and end times are displayed (View > Transport > Expanded).
- 2 Do one of the following:
 - In the Transport window, click in the start field.
 - Press Alt+Forward Slash (/) (Windows) or Option+Forward Slash (/) (Mac) on the numeric keypad to select the start field in the Transport window.
- 3 Type in the new start location and press Forward Slash (/) to enter the value and automatically move to the end field.
- 4 Type in the new end location and press Enter to accept the value.

 Shortcuts for entering start and end values in the Transport window are listed in “Numeric Entry Shortcuts for Selection Indicators” on page 573.

Sliding a Timeline Selection

Like Edit selections, Timeline selections can be slid in the Main Timebase ruler.

To move a Timeline selection in the Main Timebase ruler:


- 1 While pressing Alt (Windows) or Option (Mac), move the cursor over either of the Timeline Selection Markers (the Time Grabber appears).
- 2 Drag left or right to move the Timeline selection back or forward in time, while preserving its length.

Timeline Selections to/from Edit Selections

When the Timeline and Edit selections are unlinked, you can copy selections between them.


To change the Timeline selection to match the current Edit selection:

- Choose Edit > Selection > Change Timeline to Match Edit.

 Press Alt+Shift+5 (Windows) or Option+Shift+5 (Mac) to change the Timeline selection to match the Edit selection.

To change the Edit selection to match the current Timeline selection:

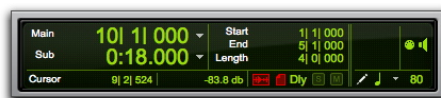
- Choose Edit > Selection > Change Edit to Match Timeline.

 Press Alt+Shift+6 (Windows) or Option+Shift+6 (Mac) to change the Edit selection to match the Timeline selection.

Navigating the Timeline with the Edit Window Counters and Indicators

The counters and indicators at the top of the Edit window display the current playback location and Edit selection. These include the Main and Sub Counters, and the Edit Selection Start, End, and Length indicators.

All Edit window counters and indicators (except the Sub Counter) let you enter a location in their counter display to navigate to a specific time location.



Main and Sub Counters, Edit Selection indicators

The Main Counter displays the playback location in the time format for the Main Time Scale. The Sub Counter can be set to any of the other Time Scale formats for another timing reference.

The Edit Selection indicators (to the right of the Main and Sub counters) display the Start and End times, and Length of the current Edit selection according to the Main Timebase.

The Main and Sub Counters, as well as the Edit Selection indicators, also appear in the Transport window when it is set to display Counters.

To navigate with the Edit window Main Counter (or one of the Edit Selection indicators):

- 1 Do one of the following:
 - Click in one of the counters.
 - Press asterisk (*) on the numeric keypad to highlight the Main Counter in the Edit window (or the Main Counter in the Transport window or Big Counter window, if either are displayed).
- 2 Type in the new location. Press Period (.) to cycle through to the different time fields.
- 3 Press Enter to accept the new value and automatically locate there.

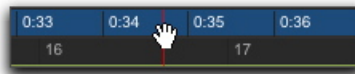
Scrolling in a Timebase Ruler

You can scroll the contents of the Edit window by dragging in a ruler. While this does not actually update the session's Current Location, it does let you conveniently shift the display left or right for the sake of finding and editing material.

This method of scrolling is especially useful when using the Continuous Scrolling option, which does not update or follow Timeline selections.

To scroll the entire contents of the Edit window from a ruler:

- While pressing Control+Alt+Start (Windows) or Command+Option+Control (Mac), drag left or right in any of the Timebase rulers.



Scrolling in a ruler

Scrolling with a Scroll Wheel

If you have a mouse with a scroll wheel, you can use the scroll wheel to scroll vertically or horizontally in any Pro Tools window that has a scroll bar (such as the MIDI Event List).

To scroll a Pro Tools window vertically:

- 1 Place the mouse over the window you want to scroll (for example, in the Edit window you might want to scroll either the track display or the Clip List).
- 2 Scroll the scroll wheel up or down to scroll the window up or down.

To scroll a Pro Tools window horizontally:

- 1 Place the mouse over the window you want to scroll (for example, in the Edit window you might want to scroll either the track display or the Clip List).
- 2 Shift-scroll the scroll wheel up or down to scroll the window to the left or right.

Auto-Scrolling Tracks in the Mix and Edit Windows

If you are working with more tracks than can be displayed at one time in the Mix or Edit windows, you can select a track in one window and Pro Tools will automatically scroll to that track in both windows.

To auto-scroll the Mix and Edit windows to show a track, do one of the following:

- In the Track List, Right-click the track name and select Scroll Into View.
- In the Track List, Control-click (Mac) the track name and select Scroll Into View.

The track becomes selected, and the Mix and Edit windows both scroll to display the selected track.

Navigating to Tracks Using Track Position Numbers

With Track Number View enabled, each track is assigned a number corresponding to its position in the Mix and Edit Windows. You can scroll directly to any track by its positional number.



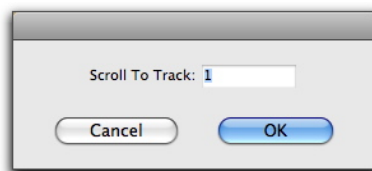
When tracks are reordered, Track Position Numbers are reassigned to keep them in numerical sequence.

To navigate directly to any track using Track Position Numbers:

- 1 Choose View > Track Number.
- 2 Choose Track > Scroll to Track.



Press Control+Alt+F (Windows) or Command+Option+F (Mac) to Scroll to Track.



Scroll To Track dialog

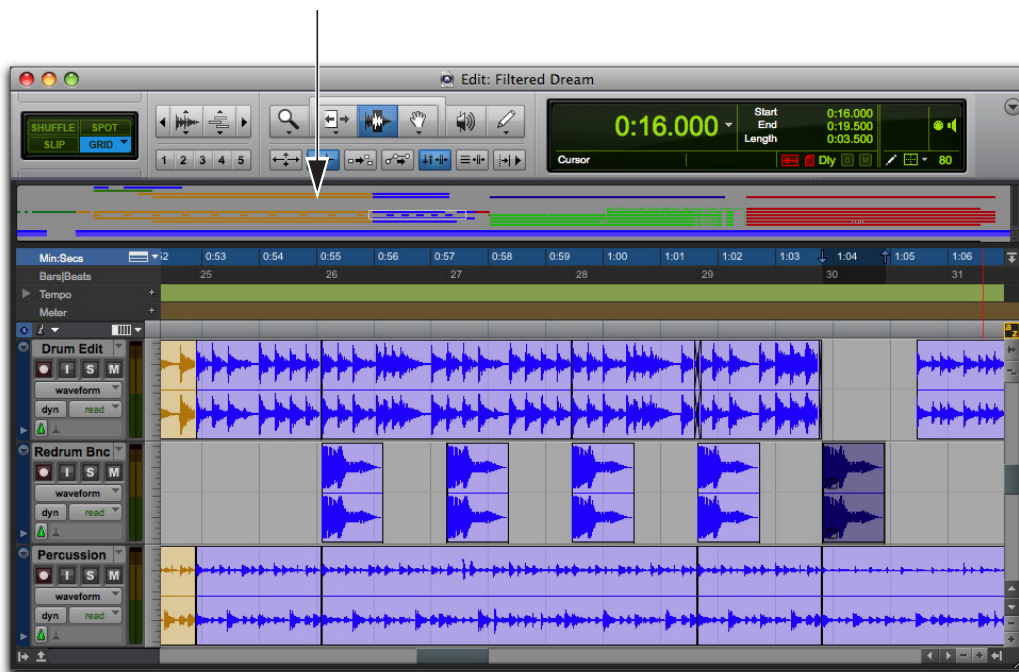
- 3 In the Scroll To Track dialog, enter the Track Number for the track you want to view.
- 4 Click OK.

The track is selected, and the windows scroll as follows:

- The Edit window tracks scroll to bring the selected track as close to the top as possible.
- The Mix window tracks scroll to bring the selected track as close to the left as possible.

Universe View

The Universe view displays an overview of the entire Pro Tools session above the tracks pane in the Edit window.



Universe view at the top of the Edit window

This overview represents audio and MIDI material on all tracks in the session that are not hidden (including tracks that are inactive, or that contain off-line clips). The order in which material is displayed in the Universe view corresponds to the track order in the Edit window.

In the Universe view, audio, MIDI, and video clips on tracks are represented by horizontal lines that are the same colors as the clips on the tracks. Each audio track is represented at the same height regardless of how many channels it has. Additionally, tracks that show Automation, Controller, or Playlist lanes are represented with increasing height for each lane shown.

Since Auxiliary Input, Master Fader, and VCA Master tracks do not contain audio or MIDI clips, they are displayed as blank areas in the Universe view.

Showing the Universe Window

To show or hide the Universe view in the Edit window, do one of the following:

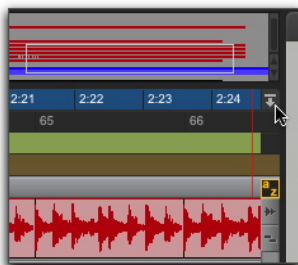
- Select or deselect View > Other Displays > Universe.
- Double-click the divider above the Main Time-base ruler.

- From the Edit window pop-up menu, select or deselect Universe.



Selecting Universe view from the Edit window pop-up menu

- Click the Show/Hide Universe view button.

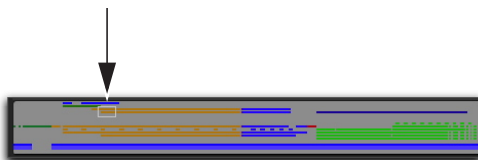


Clicking the Show/Hide Universe view button

Framed Area in the Universe View

The framed area in the Universe view represents what is visible in the Tracks pane in the Edit window. If you change what is displayed in the Edit window—by zooming, scrolling horizontally or vertically, hiding or showing tracks, or changing track heights—the framed area in the Universe view relocates and resizes accordingly. During playback, if the Edit window is set to scroll, the framed area in the Universe view also scrolls.

When all tracks are visible in the Edit window and the session is zoomed all the way out, with all clips visible, the entire Universe window is framed.



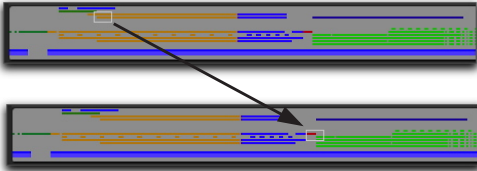
Framed area representing what part of the session is viewed in the Tracks pane of the Edit window

Navigating with the Universe View

By clicking in the Universe view, you can scroll the material displayed in the Edit window horizontally, vertically, or both. This provides a convenient method of focusing the Edit window anywhere in the session.

To navigate the session using the Universe view:

- 1 Ensure that Universe view is shown (View > Other Displays > Universe).
- 2 Click anywhere in the Universe view to move the framed area and the Edit window updates accordingly.

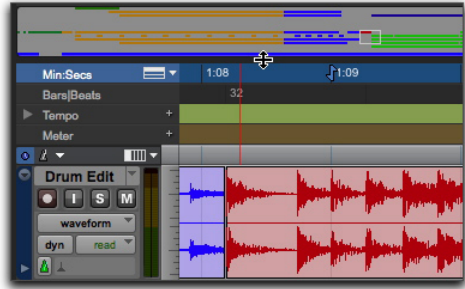


Resizing the Universe View

You can resize the height of the Universe view to fit the total number of tracks in the session, or to show more of the Edit window.

To resize the height of the Universe view:

- 1 Click the area between the bottom of the Universe window and the top of the Timebase rulers. The cursor changes to show that you can resize the Universe view.
- 2 Drag up to decrease the height of the Universe view or drag down to increase the height of the Universe view.



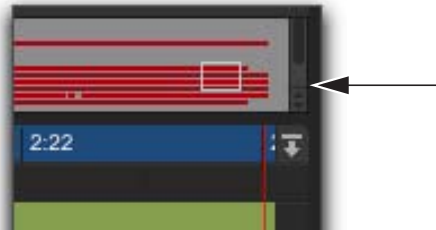
Resizing the Universe view

Scrolling the Universe View

If you have more tracks in the session than are visible in the Universe view, you can scroll up or down to show the other tracks.

To scroll the Universe view up or down:

- Click the Scroll Up or Scroll Down Arrows on the right of the Universe view.



Scroll Up and Down Arrows in the Universe view

Navigating Your Pro Tools Session

In addition the Universe view, Pro Tools let you quickly and easily navigate your session using keyboard shortcuts. This topic provides an overview of the essential key commands for navigating and making Edit selections in your session.

Zooming to the Entire Session and to the Edit Selection

To zoom your entire session into view:

- 1 Press Alt+Start+A (Windows) or Option+Control+A (Mac) to horizontally fit the beginning and end of your session to the length of the Edit window.
- 2 Press Alt+Start+Up Arrow (Windows) Option+Control+Up Arrow (Mac) to fit all of the tracks in your session to the height of the Edit window.

Now that you can see your entire session in the Edit window, identify the location to view for editing.

To zoom to an Edit selection:

- 1 With the Selector or the Grabber tool, make an Edit selection.

 Press F7 for the Selector tool or F8 for the Grabber tool.


- 2 Press Alt+Start (Windows) or Option+Control+F (Mac) to fit the length of the selection to the length of the Edit window.
- 3 Press Control+Start+Up Arrow (Windows) or Command+Control+Up Arrow (Mac) to zoom the Track Height of the Edit selection to fit to the height of the Edit window.

To zoom to an Edit selection using Zoom Toggle:

- 1 With the Selector or the Grabber tool, make an Edit selection.

 Press F7 for the Selector tool or F8 for the Grabber tool.

- 2 Press Start+E (Windows) or Control+E (Mac) to enable Zoom Toggle.

 Set the Track Height option for Zoom Toggle to Fit To Window in the Editing Preferences.

- 3 Do one of the following:

- Press Start+E (Windows) or Control+E (Mac) again to revert to the preview zoom state.
- Press Alt+Shift+E (Windows) or Option+Shift+E (Mac) to cancel Zoom Toggle without reverting to the previous view.

Creating Edit Selections with Tab to Transients

If you are editing audio with clear transients, you can use Tab to Transients to make Edit selections.

To toggle Tab to Transients on and off:

- Press Control+Alt+Tab (Windows) or Command+Option+Tab (Mac)

To navigate and extend selections forward with Tab to Transients:

- 1 With the Selector tool, place the Edit cursor before the first transient you want in your selection.
- 2 Press Tab to place the Edit cursor at the first transient.
- 3 Press Shift+Tab to extend the selection to the next transient.

To navigate and extend selections backward with Tab to Transients:

- Press Control+Tab (Windows) or Option+Tab (Mac) to move the Edit cursor to the previous transient.
- Press Control+Shift+Tab (Windows) or Option+Shift+Tab (Mac) to extend the selection to the previous transient.

Making an Edit Selection During Playback

To make an Edit selection during playback:

- 1 Place the Edit cursor in the track or across multiple tracks where you want to make the selection.
- 2 Start playback.
- 3 Press the Down Arrow to place the Edit cursor at the current playback location and mark the beginning of the Edit selection.
- 4 Press the Up Arrow to mark the end point of the Edit selection.
- 5 Stop playback.
- 6 Do one of the following:
 - Press the Left arrow to locate the beginning of the Edit selection.
 - Press the Right arrow to locate the end of the Edit selection.

Changing the Edit Selection

Pro Tools provides several keyboard shortcuts for moving and extending or decreasing the range of an Edit (or Timeline) selection.

To move the selection down to the next track:

- Press Start+; (semicolon) (Windows) or Control+; (semicolon) (Mac).



To extend the Edit selection down across tracks, Press Start+Shift+; (semicolon) (Windows) or Control+Shift+; (semicolon) (Mac).

To move the selection up to the next track:

- Press Start+P (Windows) or Control+P (Mac).



To extend the Edit selection up across tracks, Press Start+Shift+P (Windows) or Control+Shift+P (Mac).

To move the selection forward by the selection amount:

- Press Control+Alt+Start+' (single quote) (Windows) or Command+Control+Option+' (single quote) (Mac).

To move the selection backward by the selection amount:

- Press Control+Alt+Start+L (Windows) or Command+Control+Option+L (Mac).

To double the Edit selection:

- Press Control+Alt+Start+Shift+' (single quote) (Windows) or Command+Control+Option+Shift+' (single quote) (Mac).

To halve the Edit selection:

- Press Control+Alt+Start+Shift+L (Windows) or Command+Control+Option+Shift+L (Mac).

Moving the Insertion to the Beginning or End of the Selection

With the Transport stopped, you can use the Down and Up Arrows on your alphanumeric keyboard to the beginning or end of the Edit (or Timeline) selection (and collapse the selection).

To move the insertion to the beginning of the selection:

- Press the Down Arrow.

To move the insertion to the end of the selection:

- Press the Up Arrow.

Restoring the Last Selection

There are times when editing that you can lose your selection. If you lose the current Edit (or Timeline) selection and want to restore it, use the Restore Last Selection command.

To restore the last selection:

- Choose Edit > Restore Last Selection.



You can also press Control+Alt+Z (Windows) or Command+Option+Z (Mac) to restore the previous selection.

Changing Track Heights

To fit the Track heights of tracks containing the Edit selection to the height of the Edit window:

- Press Control+Start+Up Arrow (Windows) or Command+Control+Up Arrow (Mac).

To change Track height proportionally for tracks containing the Edit selection:

- Press Start+Up or Down Arrows (Windows) or Control+Up or Down Arrows (Mac).

To change Track views for all tracks together:

- Press Alt+Start+Up or Down Arrows (Windows) or Option+Control+Up or Down Arrows (Mac).

Changing Track Views

To change Track views for tracks containing the Edit selection:

- Press Control+Start+Left or Right arrows (Windows) or Command+Control+Left or Right arrows (Mac).

To change Track views for all tracks together:

- Press Control+Alt+Start+Left or Right arrows (Windows) or Command+Option+Control+Left or Right arrows (Mac).

Chapter 27: Editing Clips and Selections

Clips are the basic building blocks for arranging audio and MIDI in Pro Tools. Understanding how clips are created, edited, and arranged is essential to taking full advantage of the editing capabilities of Pro Tools.

This topic covers basic editing functions as they apply to clips and clip groups, and selections, which for the most part apply to both MIDI and audio data.

For editing procedures more specific to MIDI, see Chapter 31, “MIDI Editing.” For editing procedures specific to video, see “Video Clips” on page 1203.

Creating New Clips

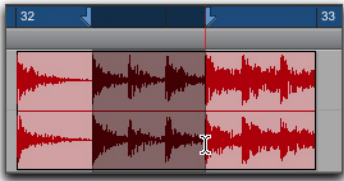
Pro Tools provides several commands for creating clips and clip groups, each of them having a slightly different effect on the selection. When you create a new clip or clip group, it appears in the Clip List and in the track’s playlist. When creating a new clip from an existing clip, the original clip remains in the Clip List. New clips are named automatically (see “Auto-Naming Options” on page 281).

Capture Clip Command

The Capture Clip command defines a selection as a new clip and adds it to the Clip List. From there, the new clip can be dragged to any existing tracks.

To capture a new clip:

- 1 With the Selector tool, drag in an existing clip to select the material for the new clip.



Selecting a portion of a clip

- 2 Choose Clip > Capture.



Press **Control+R** (Windows) or **Command+R** (Mac) for Capture Clip.

- 3 Type a name for the new clip and click OK.

The new clip appears in the Clip List. The original clip remains intact and unchanged.

Separate Commands

The Separate commands define a selection within an existing clip, or a partially selected clip, as a new clip and separate it from surrounding material. The Separate commands can also be applied to MIDI notes (see “Separating MIDI Notes” on page 687).

New clips appear in the tracks in which they are created, separate from the data surrounding them. They also appear in the Clip List.

There are three different Separate commands:

At Selection (or Edit Cursor) Creates new clip boundaries at the selection start and end points. If there is no selection and the edit cursor is placed within the clip, the clip is split into two new clips at the insertion point. Likewise, MIDI notes can be separated at the selection start and end points (or at the Edit cursor).

On Grid Creates new clips according to the selected Grid value (see “Defining the Grid Value” on page 829). Likewise, MIDI notes can be separated on the grid.

At Transients Automatically creates clip boundaries on detected transients within a selection. This uses the same algorithm for transient detection as the Tab to Transients feature (see “Tabbing to Transients” on page 576). On Elastic Audio-enabled tracks, the Separate At Transients command uses the transient events detected by Elastic Audio analysis (see “Elastic Audio Analysis” on page 880). Separate At Transients only applies to audio and is not applicable to MIDI notes or clips.

To separate one or more clips (or MIDI notes) at the selection (or at the edit cursor):

- 1 Do one of the following:

- With the Selector tool, make an Edit selection.
- With the Selector tool, click at the point where you want to separate the clip (or MIDI note).

- 2 Do one of the following:

- Choose Edit > Separate > At Selection.
- With an Edit selection, Right-click near the cursor position or selection and choose Separate from the pop-up menu.

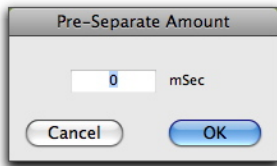


Press **Control+E** (Windows) or **Command+E** (Mac) for Separate At Selection.

- 3 If the Editing preference for Auto-Name Separated Clips is disabled, type a name for the new clip when prompted, then click OK.

To separate clips (or MIDI notes) according to the current grid resolution:

- 1 Make an Edit selection.
- 2 Choose Edit > Separate > On Grid.
- 3 In the Pre-Separate Amount dialog, type a pre-separate amount in milliseconds. This can be useful to pad the beginnings of the new clips.



Pre-Separate Amount dialog

- 4 Click OK.

To separate audio clips at transients:

- 1 Make an Edit selection.
- 2 Choose Edit > Separate > At Transients.
- 3 In the Pre-Separate Amount dialog, type a pre-separate amount in milliseconds. This can be useful to pad the beginnings of the new clips.
- 4 Click OK.

Auto-Name Separated Clips Option

With the Auto-Name Separated Clips option in the Editing Preferences page selected, Pro Tools automatically names separated clips for you. The name is a numbered variation of the original clip's name.

By separating a clip, additional clips are auto-created from data on either side of the separation, which have new numbers assigned to their names. The original clip remains intact and unchanged on the Clip List.



The Clip List can quickly fill up with auto-created clips. For easier clip management, click the Clip List menu, deselect Show > Auto-Created to hide all auto-created clips in the Clip List.

“Separate Clip” Operates On All Related Takes

When the “Separate Clip” Operates on All Related Takes option is enabled in the Editing Preferences, editing a clip with the Separate Clip command also affects all other related takes with the same User Time Stamp.

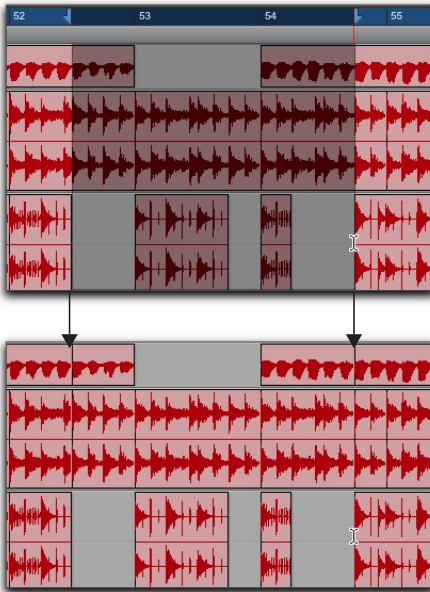
This option helps you compare different sections from a group of related takes. For example, you can quickly separate an entire group of related vocal takes into sections, then audition and select the best material from each section independently.

If this option is selected, make sure the Track Name and Clip Start and End options are also selected in the Matching Criteria window (see “Matching Criteria” on page 641). If they are not, *all* clips in the session that have the same User Time Stamp will be affected.

In most instances, you will want to disable the Separate Clip Operates On All Related Takes option, to prevent a large number of clips from being created when you use the Separate Clip command.

Separating Multiple Tracks

The following figure illustrates a separation across one mono audio track and two stereo tracks. For some tracks, the selection resides within a clip, while others reside at the start or end of a clip.



Separating across multiple tracks

Once separated, this material can be moved or copied to another location.

Separation Grabber Tool

You can use the Separation Grabber tool to automatically separate an Edit selection and move it to another location or another track.

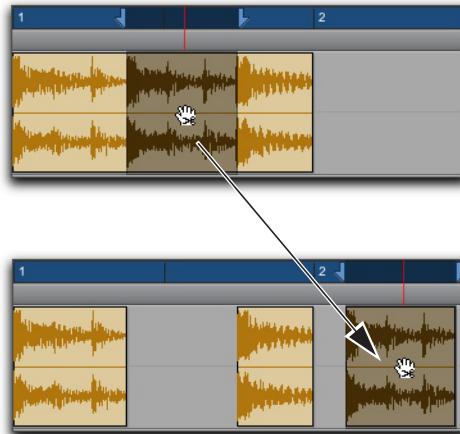
To separate a selection with the Separation Grabber tool:

- 1 With the Selector tool, make an Edit selection. The selection can reside within a single clip, across adjacent clips within the same track, or across multiple tracks.
- 2 From the Grabber tools pop-up menu, choose the Separation Grabber tool.



Separation Grabber tool

- 3 Drag the selection to the new location, or to another track.

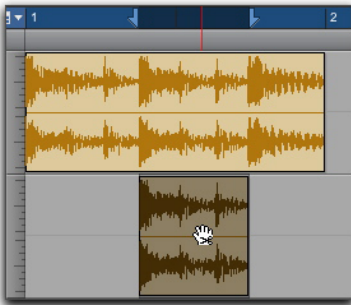


Dragging selection to later in track with Separation Grabber tool

A new clip (or clips) containing the previous selection is created, separate from the original selection. New clips are also created from the material outside the original selection.

To separate a selection without affecting the original clips:

- 1 With the Selector tool, make an Edit selection. The selection can reside within a single clip, across adjacent clips within the same track, or across multiple tracks.
- 2 From the Grabber tools pop-up menu, choose the Separation Grabber tool.
- 3 While pressing Alt (Windows) or Option (Mac), drag the selection to the new location, or to another track.

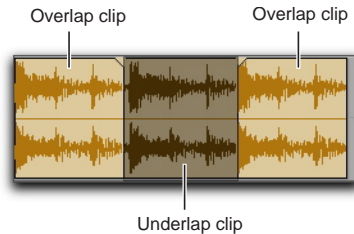


Dragging to another track with the Separation Grabber tool

New clips containing the previous selection are created and placed at the new location. The original selection and clips remain intact.

Clip Overlap and Underlap

When a tick-based audio track has multiple clips, an increase in tempo can cause neighboring clips to overlap. Audio clips can be set to display a small “dog-ear” corner to indicate overlapping clip boundaries.



Clip overlap and underlap

To toggle the display of overlap and underlap clip boundaries:

- Choose View > Clip > Overlap.

Changing Clip Overlap/Underlap

After tempo changes with tick-based audio, and other edits, clips may overlap in undesired ways. To correct this, a clip can be brought to the front, or sent behind neighboring clips as needed.

To change the clip overlap or underlap:

- 1 In the Edit window, choose the clip or clips you want to re-order.
- 2 Do one of the following:
 - Choose Clip > Bring to Front to make the clip overlap the neighboring clips.
 - Choose Clip > Send to Back to make the clip underlap the neighboring clips.

If multiple overlapping clips are selected, Pro Tools will apply the command to each clip as that clip relates to the neighboring clip on the right.

Healing Separated Clips

The Heal Separation command returns separated clips to their original state—provided the clips are still next to each other and their relative start and end points have not changed since the separation.

If you have trimmed or otherwise changed the start or end points of the two clips, or moved them further away from each other, you will not be able to repair them with the Heal Separation command. It is not possible to heal two clips created from different audio files.

To heal a separation between two clips:

- 1 With the Selector tool, make a selection that includes part of the first clip, the entire separation between the clips, and part of the second clip.
- 2 Choose Edit > Heal Separation.



Press Control+H (Windows) or Command+H (Mac) to Heal Separation.

If the clips do not heal with Heal Separation, do one of the following to return the separated clips to a single clip:

- Delete one of the two separated clips (verify that Slip mode is enabled so the gap does not close) and use the Trim tool to expand the remaining clip to its original length (see “Using the Trim Tools” on page 549).
- Delete both of the separated clips and drag the original clip from the Clip List to the original location (see “Placing Clips in Tracks” on page 819).

Trimming Clips

In addition to the Trim tools (see “Using the Trim Tools” on page 549), Pro Tools provides several options for editing clip and clip group boundaries.

Trim to Selection Command

The Trim to Selection command removes data before and after a clip or MIDI note selection, leaving only the selection. This command lets you quickly remove all data in a clip (and in some instances the entire track) except for the current selection.

To trim unwanted data from a clip or note:


- 1 With the Selector tool, select a portion of a clip or note (or a range of notes).
- 2 Choose Edit > Trim Clip > To Selection to remove material outside of the selection.

Trim to Insertion Commands

You can trim a clip or MIDI note by automatically removing the material between the Edit insertion point and the start or end point of the clip.

To trim from a start point to insertion:

- 1 With the Selector tool, click inside the clip or note where you want the new start point to be.
- 2 Choose Edit > Trim Clip > Start To Insertion. The clip's start point is automatically trimmed to the insertion point.


 Press **Alt+Shift+7 (Windows)** or **Option+Shift+7 (Mac)** to Trim Start To Insertion.

To trim from an end point to insertion:

- 1 With the Selector tool, click inside the clip or note where you want the new end point.
- 2 Choose Edit > Trim Clip > End To Insertion. The clip's end point is automatically trimmed to the insertion point.



Clip end trimmed to insertion

 Press **Alt+Shift+8 (Windows)** or **Option+Shift+8 (Mac)** to Trim Start To Insertion.

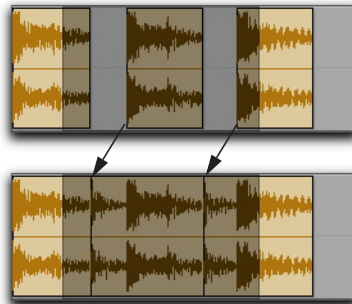
Trim to Fill Selection Commands

The Trim to Fill Selection commands let you automatically reveal underlying material in the gaps between clips, or before and after individual clips, as follow:

To trim from a start point to fill gaps:

- 1 With the Selector tool, select across at least one gap between clips.
- 2 Choose Edit > Trim Clip > Start to Fill Selection.

The start point of the clip behind the gap is automatically trimmed (expanded) to the previous clip, or as far as possible if there is not enough underlying material to cover the gap.

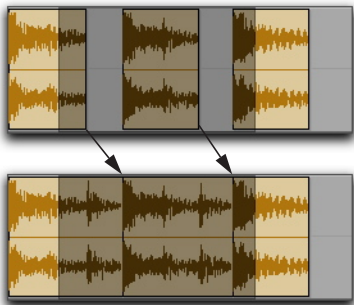


Clip start trimmed to fill gap

To trim from an end point to fill gaps:

- 1 With the Selector tool, select across at least one gap between clips.
- 2 Choose Edit > Trim Clip > End To Fill Selection.

The end point of the clip in front of the gap is automatically trimmed (expanded) to the next clip, or as far as possible if there is not enough underlying material to cover the gap.



Clip end trimmed to fill gap

To trim from a clip's start and end points to fill the Edit selection:

- 1 With the Selector tool, make an Edit selection that includes the clip you want to trim out.
- 2 Choose Edit > Trim Clip > To Fill Selection.

The start point of the clip is automatically trimmed (expanded) to the Edit selection start, or as far as possible if there is not enough underlying material to cover the selection, and the end point of the clip is automatically trimmed out (expanded) to the Edit selection end, or as far as possible if there is not enough underlying material to cover the selection.

The Trim to Fill Selection command is the inverse of the Trim to Fit Selection command: where the Trim to Fill Selection command trims a clip out to match the Edit selection, the Trim to Fit Selection command trims a clip in to match the Edit selection.

Trimming with Nudge

You can trim the start and end points of clips (or MIDI notes) by the current Nudge value.

To trim a clip's start or end point by the Nudge value:

- 1 Configure the Nudge value (see “Defining the Nudge Value” on page 595).
- 2 With the Time Grabber tool, select the clip you want to trim.
- 3 Do one of the following:
 - While pressing Alt (Windows) or Option (Mac), press Plus (+) or Minus (–) on the numeric keypad to trim the clip's start point by the Nudge value.
 - While pressing Control (Windows) or Command (Mac), press Plus (+) or Minus (–) on the numeric keypad to trim the clip's end point by the Nudge value.

Nudging Clips

Pro Tools can nudge clips (or MIDI notes) by precise increments with the Plus (+) and Minus (–) keys on the numeric keypad. The amount of the nudge is determined by the value specified in the Nudge Value pop-up menu. The Nudge function can be used in any of the Edit modes.

Nudging can be invaluable for adjusting the “groove” of a musical phrase or a sound effect relative to other elements in the session. Since Pro Tools can nudge material during playback, you can nudge continuously in real time to adjust the timing relationship between tracks.

Nudge can also be used to adjust the placement of automation breakpoints. For more information, see “Editing Automation” on page 1047.

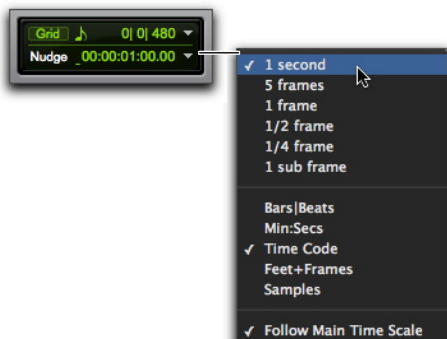
Defining the Nudge Value

The Nudge value determines how far clips and selections are moved when nudging.

Start and end points for selections can also be moved by the Nudge value (see “Nudging Selection Start/End Points” on page 571). In addition, clips can be trimmed by the Nudge value (see “Trimming with Nudge” on page 594).

To set the Nudge value:

- 1 Do one of the following:
 - From the View > Main Counter menu, select the Time Scale for the Nudge value.
 - To keep the Main Time Scale and use a different time format for the Nudge value, deselect Follow Main Timebase in the Nudge Value pop-up menu.
- 2 Specify a Nudge value by doing one of the following:
 - From the Nudge value pop-up menu in the Edit window, select the Nudge value.
 - To specify a Nudge value not listed in the Nudge Value pop-up menu, click the Nudge Value indicator and type in the value.



Nudge Value pop-up menu showing Timecode

Nudging with Nudge

To nudge one or more clip:

- 1 Configure the Nudge value (see “Defining the Nudge Value” on page 595).
- 2 With the Time Grabber or Selector tool, select the clip, clips, or clip groups you want to nudge. The clips can reside on multiple tracks. Only clips that are completely selected are nudged.
- 3 Do one of the following:
 - On the numeric keypad, press Plus (+) to move the selection forward by the Nudge value.
 - Press Minus (–) to move the selection back by the Nudge value.

The Nudge command works the same regardless of the Edit mode. Adjacent clips are overlapped in Shuffle mode, the Spot dialog does not appear when in Spot mode, and shifted material does not snap to the Grid when in Grid mode.

Nudging Clips on Multiple Tracks and in Multichannel Tracks

When nudging a selection of multiple clips within a single track or across multiple tracks, that also contains silence, any automation data residing within the silence is also nudged.

Nudging by Next Nudge Value

In addition to nudging by the current Nudge value, you can also nudge by the next larger value in the Nudge pop-up menu.

For example, if the Nudge value is set to 1 frame and you want to nudge by a larger value, you can nudge by the Nudge value of 10 frames.

To nudge forward or back by the next larger Nudge value:

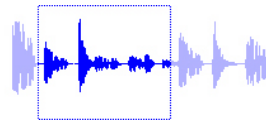
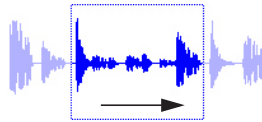
- 1 Enable Commands Keyboard Focus (see “Keyboard Focus” on page 30).
- 2 Select the clips or notes you want to nudge.
- 3 Do one of the following:
 - Press Forward Slash (/) to nudge the selected material forward by the next Nudge value.
 - Press M to nudge the selection back by the next Nudge value.



When Commands Keyboard Focus is not enabled, press Start+Forward Slash (/) (Windows) or Control+Forward Slash (/) (Mac) to nudge the selected material forward by the next Nudge value, and press Start+M (Windows) or Control+M (Mac) to nudge the selected material back by the next Nudge value.

Nudging the Contents of a Clip

Often a clip’s start point will reside at the correct location, perhaps at a SMPTE frame or barline, but the material within the clip starts too late or early. You can, in effect, nudge a clip’s audio waveform or MIDI notes without displacing the clip start and end points.



Nudging clip contents without changing clip boundaries

This “sliding” of clip contents is only possible if there is material residing outside the clip’s start and end points—from the clip having been trimmed, or perhaps captured from a larger clip.

To nudge the contents of a clip without changing the clip start and end points:

- 1 Configure the Nudge value (see “Defining the Nudge Value” on page 595).
- 2 With the Time Grabber tool, select the clip whose contents you want to nudge.
- 3 While pressing the Start key (Windows) or Control (Mac), press Plus (+) or Minus (–) on the numeric keypad to move the material by the Nudge value.

Quantizing Clips to Grid

The Quantize to Grid command adjusts the placement of selected audio and MIDI clips so that their start points (or sync points, if present) align precisely to the nearest Grid boundary.

To quantize individual MIDI notes or Elastic Audio Events, use the Quantize Event Operations. You can also use the Quantize Event Operation to quantize audio clips (see “Quantize Command” on page 904).

To quantize one or more clips:

- 1 Select the Grid value (see “Defining the Grid Value” on page 829).
- 2 With the Selector or Time Grabber tool, select the clip or clips you want to quantize. The clips can be on multiple tracks. Only clips that are entirely selected will be quantized.
- 3 Choose Clip > Quantize to Grid. Clip start times (or sync points) are aligned to the nearest boundaries for the defined Grid.



Press Control+0 (Windows) or Command+0 (Mac) to Quantize to Grid.

For MIDI clips, only the clips are quantized and all MIDI data contained within the clips (such as notes) are moved equally, thereby retaining their rhythmic relationships.

For Elastic Audio clips, only the clips are quantized and all Elastic Audio Events contained within the clips (such as transient events) are moved equally, thereby retaining their rhythmic relationships.



To quantize individual MIDI notes or Elastic Audio Events, use the Quantize Event Operations. You can also use the Quantize Event Operation to quantize audio clips. For more information see “Quantize Command” on page 904).

Editing Stereo and Multichannel Tracks

Clips on individual channels within stereo and multichannel tracks cannot be independently selected. All selections for these tracks are time-based, which means that selections made with the Selector or Time Grabber tool extend to each and every channel in the track.

When clips in multichannel tracks are edited with any of the Trim tools or dragged with the Time Grabber tool, material on all channels is affected equally as a group.

Split Selected Tracks

To edit a specific channel within a stereo or multichannel track without affecting the other channels, you can split the track into separate mono tracks. Once the edits have been made to the separated material, you can then drag or copy it back to the original multichannel track.

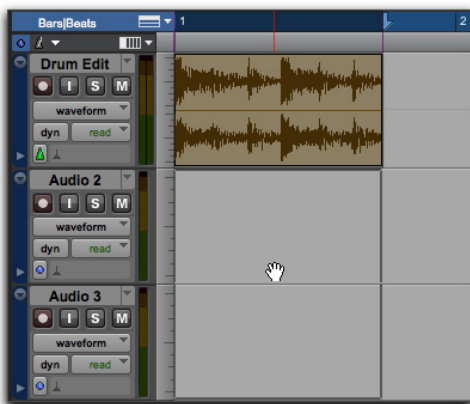
To split a stereo or multichannel track:

- 1 Select one or more stereo or multichannel tracks (see “Selecting Tracks” on page 227).
- 2 Choose Track > Split Into Mono. Clips from the channels on the selected tracks are placed on new, mono audio tracks.

Names for the new tracks are based on the source track name and channel suffix. For example, if a stereo track called “Funkit” is split, two new tracks called “Funkit.L” and “Funkit.R” are created.

Output and send assignments and volume and pan settings are retained in the new tracks. Mono equivalents of stereo and multi-mono plug-in assignments are assigned in the new tracks. However, multichannel plug-in assignments are not assigned in the new tracks.

Dragging Clips to and from Stereo and Multichannel Tracks



Dragging a stereo clip to two mono audio tracks

When dragging clips to or from stereo or multichannel tracks, the following rules apply:

- ◆ Provided the number of tracks and channels are the same for the source and destination, you can drag clips between multichannel tracks and mono tracks.
- ◆ The source and destination for dragged clips can be mixed. For example, you can drag clips from a 5.0 track (containing five channels) to a stereo track and three mono audio tracks.
- ◆ When dragging multichannel clips to mono tracks, the destination tracks must be adjacent.
- ◆ When dragging clips from mono tracks to a multichannel track, the source tracks need not be adjacent.

Multichannel clips can also be dragged from the Clip List, to multichannel tracks of the same format, groups of mono audio tracks, or a combination of both.

Conversely, a collection of single, mono clips can be dragged from the Clip List to multichannel tracks—provided the dragged number of clips matches the number of channels in the destination track.

Clip Gain

Pro Tools provides clip-based gain for quick and easy gain matching of clips (formerly called regions in Pro Tools) from different sources in a Pro Tools session. Clip-based gain is applied pre-mixer (pre-fader and before any plug-in processing). This is especially useful when working with field recordings and sample libraries in post-production sessions.

By adjusting the clip gain for individual clips on a single track, you can match their relative gain levels so that you do not have to execute complex track volume automation to compensate.



Multiple clips with different (static) Clip Gain settings

The clip gain settings stay with the clip, which means you can move, and copy and paste clips with their corresponding clip gain settings. Clip gain settings can now be imported from AAF and OMF sequences exported from Media Composer. Likewise, clip gain settings can be exported from Pro Tools with AAF sequences (but not OMF) to be imported into Media Composer.

All clips have a clip gain of 0 dB by default. Clip gain can be adjusted from -144 dB to +36.0 dB.

Static Versus Dynamic Clip Gain

You can have either *static* or *dynamic* clip gain settings for a single clip. Static clip gain simply means that there is a single gain setting for the entire clip (see “Simple Clip Gain Adjustment” on page 601). Dynamic clip gain means that you can have gain settings for a clip that vary over time (see “Graphically Editing Clip Gain” on page 601).

Clip Gain Info View

When Clip Gain Info view is enabled (View > Clip > Clip Gain Info), the Clip Gain Fader icon is shown at the beginning of the clip, in the lower left corner. If the clip uses static clip gain, the static Clip Gain value (-144 dB to +36.0 dB) for the clip is displayed to the right of the Clip Gain Fader icon. For a clip that has dynamic clip gain (using breakpoint gain settings), the Clip Gain value is not shown.

Clip Gain commands (including the Clip Gain Fader and its Right-click commands) only apply to the single, whole clip with which it is associated.



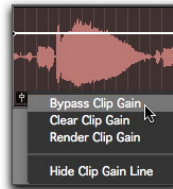
Clip Gain icon

To show or hide Clip Gain icon, do one of the following:

- Select or deselect View > Clip > Clip Gain Info.
- Press Control+Shift+“=” (Equal) (Mac) or Start+Shift+“=” (Equal) (Windows).

Clip Gain Fader Icon Right-Click Menu

You can Right-click the Clip Gain Fader icon for any individual clip to access relevant clip gain commands for that clip.



Clip Gain Icon Right-click menu

The Clip Gain Fader icon Right-click menu operates independently of the Clip Gain sub-menu that is accessible when Right-clicking on an Edit selection. When rendering clip gain settings, the resulting clip provides handles for trimming out the clip based on the Default Handle Length settings in the Processing Preferences.

Bypass Clip Gain

When Bypass Clip Gain is selected in the Right-click menu, the current clip gain settings are bypassed and the clip plays back with 0 dB gain adjustment.

Clear Clip Gain

Choose Clear Clip Gain in the Right-click menu to clear the clip gain settings for the clip.

Render Clip Gain

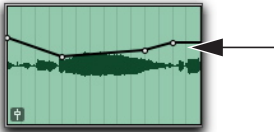
Choose Render Clip Gain in the Right-click menu to render the current clip gain settings for the clip. After the clip is rendered with its new gain, the clip gain settings are reset to 0 dB.

Show/Hide Clip Gain Line

Select Show/Hide Clip Gain Line in the Right-click menu to show or hide the Clip Gain Line for all clips.

Clip Gain Line

The Clip Gain Line lets you edit the clip gain settings for any given clip using breakpoint editing, much like with track-based volume automation. However, unlike track-based volume automation, the clip gain settings are always associated with the clip rather than with the track. The Clip Gain Line can be shown or hidden for all clips in the Edit window.



Clip Gain Line (with multiple breakpoints)

To show or hide the Clip Gain Line, do one of the following:

- Select or deselect View > Clip > Clip Gain Line.
- Press Control+Shift+“-” (Hyphen) (Mac) or Start+Shift+“-” (Hyphen) (Windows).
- Right-click the Clip Gain Fader icon on any clip and choose Show Clip Gain Line or Hide Clip Gain Line.
- Right-click any clip and choose Clip Gain > Show Clip Gain Line or Clip Gain > Hide Clip Gain Line.

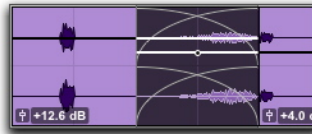
⚠ *The Clip Gain Line is only shown when the track height is set to Small or larger.*

Clip Gain Line and Crossfades

Clip gain is applied on a clip-by-clip basis. When cross-fading between clips, the Clip Gain Line for the first clip carries through the fade out segment of the crossfade and the Clip Gain Line for the second clip carries through the fade in segment of the crossfade. Consequently, crossfades can display two Clip Gain Lines, one for the first clip and one for the second clip.



Clip Gain Lines prior to applying a crossfade



Clip Gain Lines after applying a crossfade

Editing Clip Gain

Pro Tools lets you adjust the gain settings for a clip using the Clip Gain Fader for quick and easy adjustments, or using breakpoint editing on the Clip Gain Line for detailed clip gain control.

⚠ *If a clip is Edit-locked and you attempt to edit clip gain, you are prompted to Cancel or Allow the edit.*

Simple Clip Gain Adjustment

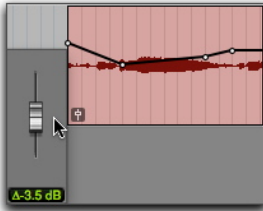
You can adjust clip gain using the Clip Gain Fader icon for quick and easy clip gain adjustments.

To boost or attenuate the current clip gain settings for a single clip:


- 1 Ensure that the Clip Gain Info option is enabled.
- 2 Click the Clip Gain Fader icon on the clip and drag the Clip Gain fader up or down to boost or attenuate the clip gain settings for the clip.



Clip Gain fader, adjusting static clip gain value



Clip Gain fader, adjusting all breakpoint clip gain values

 Press **Command** (Mac) or **Control** (Windows) while adjusting the Clip Gain fader for fine control.

Graphically Editing Clip Gain

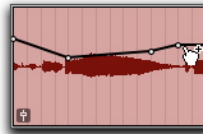
You can graphically edit clip gain using breakpoints on the Clip Gain Line for individual clips. When you drag a clip gain breakpoint up or down, the change in the gain setting value is numerically indicated. Dragging a clip gain breakpoint to the left or right adjusts its timing.

Using the Grabber Tool

Using the Grabber tool, you can add, adjust, and delete individual clip gain breakpoint settings.

To add a clip gain breakpoint with the Grabber tool:

- 1 Ensure that the Clip Gain Line option is enabled.
- 2 Select the Grabber tool.
- 3 Click at any point on the Clip Gain Line for the clip to add a breakpoint. The Grabber points and displays a Plus sign (“+”).



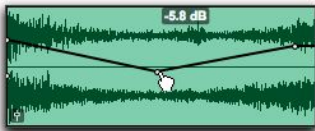
Adding a clip gain breakpoint with the Grabber tool



Press **Control+Shift+E** (Mac) or **Start+Shift+E** (Windows) to add a Clip Gain breakpoint at the current Edit location.

To adjust a clip gain breakpoint with the Grabber tool:

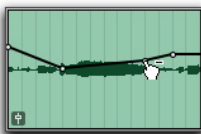
- 1 Ensure that the Clip Gain Line option is enabled.
- 2 Select the Grabber tool.
- 3 Click any breakpoint on the Clip Gain Line and move it up or down to adjust the gain, or left to right to adjust the timing. The gain setting is displayed in dB over the selected breakpoint.



Adjusting a clip gain breakpoint with the Grabber tool

To delete a clip gain breakpoint with the Grabber tool:

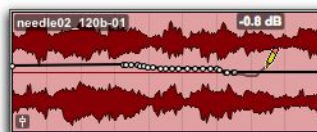
- 1 Ensure that the Clip Gain Line option is enabled.
- 2 Select the Grabber tool.
- 3 Option-click (Mac) or Alt-click (Windows) the breakpoint you want to delete. The Grabber points and displays a Minus sign (“-”).



Deleting a clip gain breakpoint with the Grabber tool

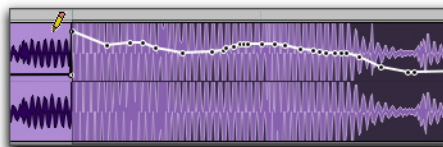
Using the Pencil Tool

The Pencil tool lets you create new breakpoints by clicking once on the graph line. Pro Tools lets you use the Free Hand, Line, Triangle, Square, and Random Pencil Tool shapes for drawing clip gain. The Parabolic and S-Curve Pencil Tool shapes are not available for editing clip gain.



Using the Pencil tool (Free Hand) to draw clip gain settings

When drawing clip gain settings with the Pencil tool, its effect is bounded by the Edit selection if the pencil gesture crosses into the selection. However, if the pencil gesture is entirely outside of a selection, it creates clip gain breakpoints outside of the selection.



Using the Pencil tool (Free Hand) to draw clip gain settings bound by the Edit selection

To add clip gain breakpoints with the Pencil tool:

- 1 Ensure that the Clip Gain Line option is enabled.
- 2 Select the Pencil tool.
- 3 Do one of the following:
 - Click once on the Clip Gain Line to add a single breakpoint.
 - Drag on the Clip Gain Line to draw breakpoints.

To delete a clip gain breakpoint with the Pencil tool:

- 1 Ensure that the Clip Gain Line option is enabled.
- 2 Select the Pencil tool.
- 3 Option-click (Mac) or Alt-click (Windows) the breakpoint you want to delete.

Using the Trim Tools

The Trim tools let you adjust all selected breakpoints up or down by dragging anywhere within that selection. Unlike track-based Volume automation, which scales when trimming, clip gain provides true trimming (where clip gain settings maintain their fixed relations to one another when trimming).



Using the Trim tool to boost or attenuate clip gain breakpoints

To trim the selected clip gain settings up or down:

- 1 Ensure that the Clip Gain Line option is enabled.
- 2 Make an Edit selection that includes the clip gain settings that you want to adjust.
- 3 Select the Trim tool.
- 4 Drag up or down over the Clip Gain Line within the Edit selection.

Nudging Clip Gain

Pro Tools lets you nudge the selected clip gain settings up or down by the Nudge Clip Gain By amount specified in the Pro Tools Editing Preferences. You can also nudge the selected clip gain settings back or forward in the clip by the specified nudge amount.



You can also nudge Clip Gain up or down with EUCON. See the Artist Series and Pro Tools guide for more info.

To set the Nudge Clip Gain By amount:

- 1 Choose Setup > Preferences.
- 2 Click the Editing tab.
- 3 Enter a value for the Nudge Clip Gain By setting.
- 4 Click OK.

To nudge the selected clip gain up:

- Press Control+Shift+Up Arrow (Mac) or Start+Shift+Up Arrow (Windows).

To nudge the selected clip gain down:

- Press Control+Shift+Down Arrow (Mac) or Start+Shift+Down Arrow (Windows).



If you have a mouse with a scroll wheel, you can use the scroll wheel to nudge the selected clip gain settings up or down. Press Control+Shift (Mac) or Start+Shift (Windows) and scroll the scroll wheel up or down.

To nudge the selected clip gain back, do one of the following:

- Press Control+Shift+“–” (Minus) (Mac) or Start+Shift+“–” (Minus) (Windows).
- Press Control+Shift+M (Mac) or Start+Shift+M (Windows).
- Press Control+Shift+“,” (Comma) (Mac) or Start+Shift+“,” (Comma) (Windows).

To nudge the selected clip gain forward, do one of the following:

- Press Control+Shift+“+” (Plus) (Mac) or Start+Shift+“+” (Plus) (Windows).
- Press Control+Shift+“.” (Period) (Mac) or Start+Shift+“.” (Period) (Windows).
- Press Control+Shift+“/” (Slash) (Mac) or Start+Shift+“/” (Slash) (Windows).

Clearing Clip Gain

Pro Tools lets you clear the clip gain settings for the current Edit selection. This resets the clip gain for the selection to 0 dB. For clips only partially included in the Edit selection, only the clip gain settings within the Edit selection are affected.

To clear clip gain, do one of the following:

- Right-click a clip or Edit selection and choose Clip Gain > Clear Clip Gain.
- Right-click the Clip Gain Fader icon for a single clip and choose Clear Clip Gain.
- Select a clip or make an Edit selection and choose Edit > Clip Special > Clear Clip Gain.
- Select a clip or make an Edit selection and press Control+Shift+B (Mac) or Start+Shift+B (Windows).
- Press Option (Mac) or Alt (Windows) and click Clip Gain Fader icon for a single clip.


Cutting, Copying, and Pasting Clip Gain

Pro Tools lets you cut, copy, and paste clip gain settings, so that you can apply the clip gain settings from one clip to any other. Clip gain settings cannot be cut, copied, or pasted across clip boundaries.

To cut clip gain settings:

- 1 Select a single whole clip or make an Edit selection within a single whole clip.
- 2 Do one of the following:
 - Choose Edit > Cut Special > Cut Clip Gain.
 - Press Control+Shift+X (Mac) or Start+Shift+X (Windows).

The selected clip gain settings are cut and copied to the clipboard. Clip gain breakpoints on the clipboard are time-stamped with the playback times in the timebase of the track being copied (which means you can cut and paste clip gain settings from clips on tick-based tracks and have the pasted clip gain settings match the corresponding bar:beat locations of clips on other tick-based tracks).

 *You can cut clip gain settings from any Edit selection. However, if you want to cut and paste clip gain settings, you can only paste the clip gain settings cut from a single clip.*

To copy clip gain settings:

- 1 Select a single whole clip or make an Edit selection within a single whole clip.
- 2 Do one of the following:
 - Choose Edit > Copy Special > Copy Clip Gain.
 - Press Control+Shift+C (Mac) or Start+Shift+C (Windows).
 - Right-click any single whole clip selection and choose Clip Gain > Copy Clip Gain.

The selected clip gain settings are copied to the clipboard. Clip gain breakpoints on the clipboard are time-stamped with the playback times in the timebase of the track being copied (which means you can copy and paste clip gain settings from clips on tick-based tracks and have the pasted clip gain settings match the corresponding bar:beat locations of clips on other tick-based tracks).

To paste clip gain settings:

- 1 Cut or Copy the clip gain settings you want.
- 2 Do one of the following:
 - Select another clip.
 - Make an Edit selection within a single whole clip.
 - Place the Edit In Point where you want the cut or copied clip gain settings to be pasted.
- 3 Do one of the following:
 - Choose Edit > Paste Clip Gain.
 - Press Command+V (Mac) or Control+V (Windows).

The clip gain settings on the clipboard are pasted into the clip starting at the Edit In Point. The clip gain settings are pasted in their entirety, but only apply to a single clip. If the pasted clip gain settings extend beyond the end of the clip, they are all still associated with the clip. This means that if you trim out the clip later, the pasted clip gain is revealed. When pasting clip gain within a clip (rather than to a single whole clip of the same duration), breakpoints are added before and after the pasted data so that any clip gain settings outside the paste do not change.

Converting Clip Gain and Track Volume Automation

(Pro Tools HD or Pro Tools with Complete Production Toolkit Only)


Pro Tools lets you convert clip gain settings to track-based volume automation, as well as letting you convert track-based volume automation to clip gain settings.

When converting clip gain settings to volume automation, the clip gain settings are cut from the clip and pasted to track-based volume automation at the same timeline locations as the clip.

When converting track-based volume automation to clip gain, the volume automation is cut from the track volume automation playlist and pasted to the clip. Once volume automation has been converted to clip gain, the clip gain settings stay with the clip when moved, cut, copied, or pasted.

To convert clip gain settings to track-based volume automation:

- 1 Select a clip or make an Edit selection.
- 2 Choose Edit > Automation > Convert Clip Gain to Volume Automation.

 *Any clip gain settings above +12 dB are lost when converted to volume automation. Also, clip gain settings within crossfades are crossfaded as part of the volume automation.*

To convert track-based volume automation to clip gain:

- 1 Select a clip or make an Edit selection.
- 2 Choose Edit > Automation > Convert Volume to Clip Gain.

Coalescing Clip Gain and Track Volume Automation

(Pro Tools HD or Pro Tools with Complete Production Toolkit Only)

Pro Tools lets you coalesce clip gain settings to track-based volume automation, as well as letting you coalesce track-based volume automation to clip gain settings.

When coalescing clip gain settings to volume automation, the clip gain settings are cut from the clip and coalesced with track-based volume automation at the same timeline locations as the clip.


When coalescing track-based volume automation to clip gain, the volume automation is cut from the track volume automation playlist and coalesced with the selected clip gain settings. Once volume automation has been coalesced to clip gain, volume automation is set to 0 dB for the selection.

To coalesce clip gain settings to track-based volume automation:

- 1 Select a clip or make an Edit selection.
- 2 Choose Edit > Automation > Coalesce Clip Gain to Volume Automation.

To coalesce track-based volume automation to clip gain settings:

- 1 Select a clip or make an Edit selection.
- 2 Choose Edit > Automation > Coalesce Volume to Clip Gain.

 *Any clip gain settings above +12 dB are lost when it is coalesced to volume automation. Also, clip gain within crossfades is cross-faded as part of the volume automation.*

Bypassing Clip Gain

Pro Tools lets you bypass the current clip gain settings for any selected whole clip. This means that you can hear the clip without any clip gain adjustments without losing your current clip gain settings.

To bypass (or unbypass) clip gain for a clip, do one of the following:

- Select one or more whole clips and choose Clip > Clip Gain > Bypass Clip Gain (or choose Clip > Clip Gain > Unbypass Clip Gain).
- Right-click the Clip Gain Fader icon for a clip and select (or deselect) Bypass.
- Right-click a clip or an Edit selection and choose Clip Gain > Bypass Clip Gain (or choose Clip Gain > Unbypass Clip Gain).

The clip gain settings for any whole clips within the Edit selection are bypassed (or unbypassed).


Rendering Clip Gain


Pro Tools lets you render the current clip gain settings for any selected whole clip. Rendering clip gain applies the current clip gain settings to a new clip and sets the clip gain settings for the new clip to 0 dB.

To render clip gain for a clip, do one of the following:

- Select one or more whole clips and choose Clip > Clip Gain > Render Clip Gain.
- Right-click the Clip Gain Fader icon for a clip and choose Render Clip Gain.
- Right-click a clip or an Edit selection and choose Clip Gain > Render Clip Gain.

Clip gain for any whole clips within the Edit selection is rendered and their clip gain settings are reset to 0 dB.

 *For clips with any clip gain settings other than 0 dB, the Prepare DPE Tracks command (for DestructivePunch) automatically renders all clip gain settings and resets all clip gain settings to 0 dB.*


 *When processing in an AudioSuite mode that renders in clip gain, any clip gain settings are rendered first, and then AudioSuite processing is applied. Clip gain is reset to 0 dB for the resultant clip. However, when creating individual files with AudioSuite, or overwriting files clip-by-clip, clip gain settings are preserved. For more information, see “Conditions for AudioSuite Rendering with Handles, Fades, Clip Gain, and Metadata” on page 870.*

Consolidating Clips

During the course of normal edit operations, any track can accumulate many clips. However, once a track or track range (such as a verse or chorus) reaches a satisfactory state, you may want to consolidate multiple clips into a single clip.

When consolidating an entire audio track or just an Edit selection, a new audio file is written that consists of the entire selection, including any blank space.

When consolidating, muted clips are treated as silence. Otherwise, whether or not a track is muted, or contains Mute automation, does not affect the Consolidate command.

 *Consolidating an audio track does not consolidate underlying automation data. To create a single file with automation data applied to the audio, use Bounce to Disk (see “Bounce to Disk” on page 1082).*

To consolidate clips within a track:

1 Do one of the following:

- Using the Time Grabber or Selector tool, select the clips you want to consolidate.
- To select all clips in a track, triple-click in its playlist with the Selector tool.

2 Choose Edit > Consolidate.




Press Alt+Shift+3 (Windows) or Option+Shift+3 (Mac) to Consolidate.

Compacting an Audio File

The Compact command deletes unused portions of audio files to conserve disk space, and to prepare for cleaner hard drive back-ups. The Compact Selected command also deletes any audio files for which there are no clips on tracks referencing those files.

Because it permanently deletes audio data, the Compact command should be used only after you have completely finished your editing and are sure that you have no further use for the unused audio data.

The Compact command can *pad* the clips of the compacted file by a selectable amount. If clips in your session use crossfades, or if you want to pad the clips for the sake of any future trimming, you should enter an appropriate amount of padding (in milliseconds).

 *The Compact command is destructive and cannot be undone. It permanently alters the original audio files. There is no way to recover data deleted by this command.*


To compact an audio file:

- 1 In the Clip List, select the clip or clips you want to compact.
- 2 From the Clip List menu, choose Compact.
- 3 Enter the amount of padding in milliseconds that you want for each clip in the file.
- 4 Click Compact to compact the file or Cancel to cancel the command.

Once the Compact command has been completed, the session is saved automatically.

Processing Audio with AudioSuite Plug-Ins

The AudioSuite plug-ins included with your Pro Tools system can be used to process and modify audio clips or even entire audio files. Do this in order to apply a specific AudioSuite process (such as Normalization or DC Offset Removal) to any number of audio clips in your session.

 *For more information about AudioSuite plug-ins, see Chapter 39, “AudioSuite Processing.”*

TCE (Time Compression and Expansion) Edit To Timeline Selection

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

When the Edit and Timeline selections are unlinked, you can compress or expand an audio selection to fit the Timeline selection. On audio tracks, TCE Edit to Timeline Selection uses the TCE AudioSuite Plug-In selected in the Processing preferences (see “Processing Preferences” on page 138). On Elastic Audio-enabled tracks, TCE Edit To Timeline Selection uses the track’s selected Elastic Audio plug-in (see “Elastic Audio Plug-Ins” on page 882).

To fit an Edit selection to the Timeline:

- 1 Deselect Options > Link Timeline and Edit Selection.
- 2 With the Selector tool, select the audio material to be compressed or expanded.
- 3 In any Timebase ruler, select the time range where you want to fit the audio material.
- 4 Choose Edit > TCE Edit to Timeline Selection. The Edit selection is compressed or expanded to the length of the Timeline selection.

TCE Edit to Timeline Selection on Multiple Tracks and Channels

The TCE Edit to Timeline command can be used on multichannel selections, and selections across multiple tracks. All clips are compressed or expanded equally by the same percentage value, based on Edit selection range. This ensures that the rhythmic relationship between the different channels or tracks is maintained.

Fitting an Audio Clip to an Edit Selection

Clips can be dragged from the Clip List to fit within an Edit selection. The dragged clip is compressed or expanded to fit within the selection. On audio tracks, fitting an audio clip to the Edit selection uses the TCE AudioSuite Plug-In selected in the Processing preferences (see “Processing Preferences” on page 138). On Elastic Audio-enabled tracks, it uses the track’s selected Elastic Audio plug-in (see “Elastic Audio Plug-Ins” on page 882).

To fit an audio clip to an Edit selection:

- 1 With the Selector tool, make an Edit selection in an audio track.
- 2 Control-Alt-drag (Windows) or Command-Option-drag (Mac) the clip from the Clip List to the track with the selection. The start of the clip is positioned at the selection start, and the clip is compressed or expanded to match the length of the selection.

Fit to Selection on Multiple Tracks and Channels

The Fit to Selection command supports dragging multiple clips from the Clip List to multiple tracks, or multichannel tracks.

However, all dragged clips are compressed or expanded equally by the same percentage value, based on length of the clip last clicked before dragging.

Rating Clips

You can rate different clips on a scale of 1 to 5, where 5 is the highest (or best) and 1 is the lowest (or worst). Clip rating is useful for identifying which takes (clips) you like the most when compositing playlists. You can display or hide the clip rating in clips to facilitate track compositing or regular editing. You can also show or hide Playlist lanes based on the ratings of clips in the playlist (see “Filtering Lanes” on page 640).

To rate a clip:

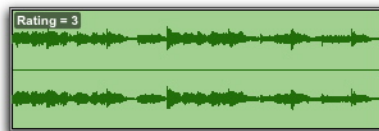
- 1 Select the clip.
- 2 Do one of the following:
 - Choose Clip > Rating, and select a ranking of 1 to 5.
 - Right-click the clip, choose Rate, and select a ranking of 1 to 5.



You can rate selected clips during playback by pressing Control+Alt+Start (Windows) or Command+Option+Control (Mac) and then typing the rating number (1–5) on the numeric keypad.

To display ratings in clips:

- Select View > Clip > Rating.



Clip with Rating shown

To hide ratings in clips:

- Deselect View > Clip > Rating.

Chapter 28: Fades and Crossfades

Pro Tools calculates fades and crossfades in RAM in real-time. You can quickly and easily apply a fade-in or fade-out on a audio clip, as well as apply crossfades between adjacent audio clips. Crossfading is the process of fading between two clips of audio to prevent pops, clicks, or sudden changes in sound. Crossfades have many applications, from smoothing transitions between clips to creating special audio effects. The crossfade duration, position, and shape are all user-definable.

About Crossfades and Curves

To create a crossfade between two clips, use the Selector tool to select across the end point of the first clip and the start point of the second. The length of the selection determines the length of the crossfade. Though fades may appear to be discrete clips, they cannot actually be separated from the clips in which they were created. You can, however, create fade-ins and fade-outs for individual clips (see “Creating Fades at the Beginnings and Ends of Clips” on page 619).

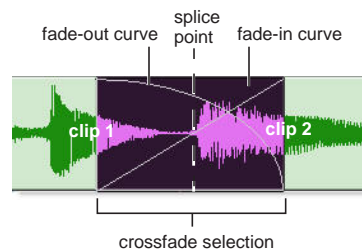
Use the Fades dialog to select, view, and manipulate the curves used to perform fades and crossfades. Different volume curves can be assigned to the fade-out and fade-in portions of crossfades. The Fades dialog can also be used to audition a fade or crossfade before applying it.

The type of selection you make determines the character of the crossfade.

💡 *Since crossfades are created by fading between overlapping audio material, a crossfade cannot be performed on clips that do not contain audio material beyond their clip boundaries.*

⚠️ *If a clip references insufficient data to execute a selected fade or crossfade, you are prompted to either skip those fades or to adjust the bounds of the selection to execute those fades.*

Standard Crossfade (Centered)

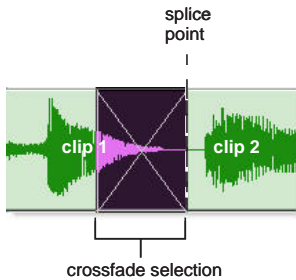


Centered crossfade

This type of selection creates a crossfade on both sides of the splice point, which affects the volume of clip 1 and clip 2. It is the most common type of crossfade.

This crossfade type requires that clip 1 contain audio material beyond its end point, and clip 2 contain audio material before its start point.

Pre Crossfade

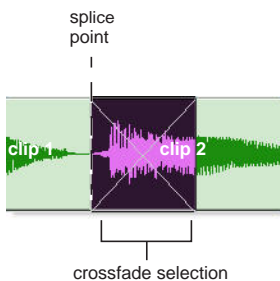


Pre crossfade

This type of selection creates a crossfade before the splice point. This lets you maintain the volume of the very beginning of clip 2 instead of fading across it, which is useful if there is a strong attack at the beginning of clip 2 that you want to preserve. When making selections for crossfades that occur on the border of two clips, you can use the Tab key to move the cursor to the exact beginning or end of a clip.

This crossfade type requires that clip 2 contain audio material before its start point.

Post Crossfade



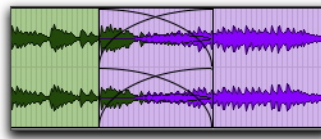
Post crossfade

This type of selection creates a crossfade after the splice point. It is useful if you want to maintain the amplitude of clip 1 until its very end. When making selections for crossfades that occur on the border of two clips, you can use the Tab key to move the cursor to the exact beginning or end of a clip.

This crossfade type requires that clip 1 contain audio material beyond its end point.

Overlapping Crossfades View

Pro Tools lets you view overlapping waveforms in crossfades.



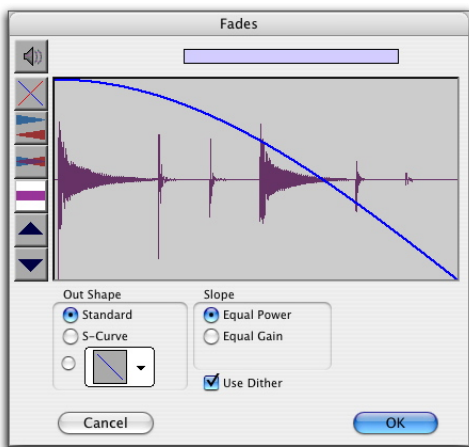
Overlapping Crossfades view

To show (or hide) overlapping crossfades:

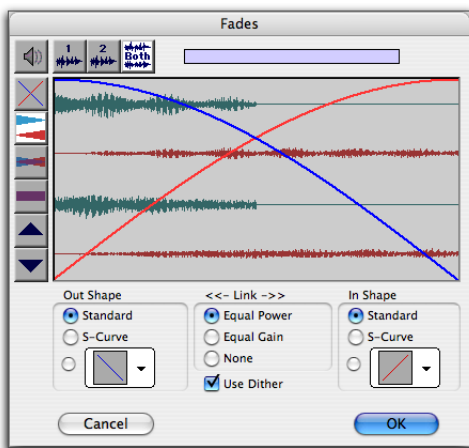
- Select (or deselect) View > Waveform > Overlapping Crossfades.

Fades Dialog

When choosing the Edit > Fades command you can use the Fades dialog to select, view, and preview fades and crossfades, and to edit the curves used to perform fades and crossfades. A fade-in shows the In Shape settings, but not the Out Shape settings, and likewise a fade-out shows the Out Shape settings, but not the In Shape settings.



Fades dialog, fade-out



Fades dialog, crossfade

The controls in the Fades dialog include:

Audition



Click this button to audition fades. Pro Tools supports fade auditioning directly from your audio interface outputs.

View First Track (Crossfades Only)



If you are cross-fading between more than one track, this button allows you to view and preview the audio of the first in a pair of adjacent tracks.

View Second Track (Crossfades Only)



If you are cross-fading between more than one track this button allows you to view and preview the audio of the second in a pair of adjacent tracks.

View Both Tracks (Crossfades Only)



Click this button to display the waveforms of the first two adjacent tracks in a multitrack crossfade.

Fade Curves Only



Click this button to display the specified fade curves without showing the actual audio waveforms. This is the default view when you open the Fades dialog.

Fade Curves and Separate Waveforms



Click this button to display the specified fade curves along with separate views of the fade-in and fade-out waveforms.

Fade Curves and Superimposed Waveforms



Click this button to display the specified fade curves along with superimposed views of the fade-in and fade-out waveforms.

Fade Curves and Summed Waveform



Click this button to display the specified fade curves along with a single waveform representing the summation of the any crossfaded audio.

Zoom In



Click this button to scale the view of the waveform's amplitude upwards. Control-click (Windows) or Command-click (Mac) for the default view scale.

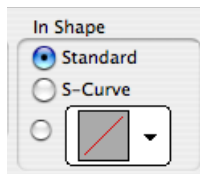
Zoom Out



Click this button to scale the view of the waveform's amplitude downwards. Control-click (Windows) or Command-click (Mac) for the default view scale.

Fade-Out Shape Settings

The Out Shape setting lets you define the shape of the fade-out from a clip for a fade, or from clip 1 for a crossfade.



Fade-in Shape

Standard Selects a single continuous fade curve. This creates a general-purpose fade that can be edited by dragging the curve itself.

S-Curve Selects an S-shaped curve, which inverts its beginning and end characteristics. This makes it possible to fade out faster at the curve's start and slower at its end, for example. S-shaped curves can be useful with material that is difficult to crossfade effectively. S-curves can be edited by dragging the curve in the curve editor.

Preset Curves Seven commonly used preset curves are provided for fast crossfade creation. These can be edited by dragging the end points of the curve in the curve editor portion of this dialog. The seven presets are as follows:

- ◆ Preset Curve 1 stays at full volume throughout the fade, then immediately drops the volume at the end of the fade.



Preset Curve 1

- ◆ Preset Curve 2 fades out relatively slowly, keeping the volume fairly high throughout the duration of the fade.



Preset Curve 2

- ◆ Preset Curve 3 fades out slightly faster, keeping the volume slightly lower during the fade.



Preset Curve 3

- ◆ Preset Curve 4 fades out with a linear fade. This is the default curve.



Preset Curve 4

- ◆ Preset Curve 5 fades out quickly at the beginning of the crossfade.



Preset Curve 5

- ◆ Preset Curve 6 drops the volume even more quickly at the beginning of the fade.



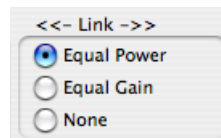
Preset Curve 6

- ◆ Preset Curve 7 silences any audio at the beginning of the fade.



Preset Curve 7

Link Settings (Crossfades Only)



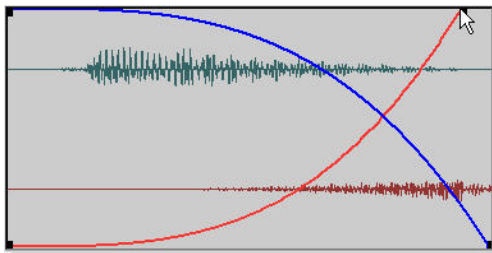
Fade Link

The Link setting links the selected fade-out and fade-in curves of a crossfade. If you adjust one curve, the corresponding curve is also adjusted. This ensures that the resulting crossfade is an *equal power* or *equal gain* crossfade, depending on which one you select.

Equal Power Recommended for material that is not phase coherent, as in the case of a crossfade between two completely different types of material. Use this option to avoid the volume drop that can occur with an Equal Gain crossfade. With this fade, you can Alt-click (Windows) or Option-click (Mac) the fade curve to reset it to its default shape.

Equal Gain Recommended for material that is phase-coherent or nearly phase-coherent, as in the case of a crossfade between identical clips/instruments (for example, a repeated drum loop). Use this option to avoid clipping that can occur when using an Equal Power crossfade. With this fade, you can Alt-click (Windows) or Option-click (Mac) the fade curve to reset it to its default shape.

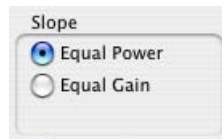
None Disables linking between the fade-out and fade-in curves, and lets you freely adjust them separately, including start and end points. This option also allows you to create custom crossfade shapes.



Adjusting the end point of a fade curve

When Link is set to Equal Power or Equal Gain, you can edit only the fade-in portion of the curve, by pressing Alt (Windows) or Option (Mac) while dragging. To edit only the fade-out portion of the curve, press Control (Windows) or Command (Mac) while dragging.

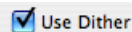
Slope Settings (Fade-In or Fade-Out Only)



Fade Link

The Slope settings affect the slope of the fade-in or fade-out. Select either Equal Power or Equal Gain. For more information on Equal Power and Equal Gain fades, see “Link Settings” on page 615.

Use Dither



Dither option for Fades

The Use Dither option turns on a preset, noise-shaped dither function that improves audio performance when fading in or fading out of silence, and crossfading between low amplitude clips. Dither is usually not necessary when applying fades to clips with audio at high amplitudes. You can disable Dither while editing fades in the Fades dialog to speed up previews and fade recalculation, then re-enable Dither to create the final fade or crossfade.

Fade-In Shape Settings

The In Shape setting lets you define the shape of the fade-in to a clip for a fade, or to clip 2 for a crossfade.

Standard Selects a single continuous fade curve. This creates a general-purpose fade that can be edited by dragging the curve itself.

S-Curve Selects an S-shaped curve, which inverts its beginning and end characteristics. This makes it possible to fade in faster at the start of the curve, and slower at the end. S-shaped curves are useful with material that is difficult to fade effectively. S-curves can be edited by dragging the curve in the curve editor.

Preset Curves Seven commonly used preset curves are provided for fast creation. These can be edited by dragging the end points of the curve in the curve editor portion of this dialog. The seven presets are as follows:

- ◆ Preset Curve 1 fades in at full volume immediately at the beginning of the fade and keeps it there throughout the fade.



Preset Curve 1

- ◆ Preset Curve 2 fades in quickly in the beginning, reaching full amplitude fairly early in the fade.



Preset Curve 2

- ◆ Preset Curve 3 fades in moderately fast.



Preset Curve 3

- ◆ Preset Curve 4 fades in with a linear fade curve. This is the default curve.



Preset Curve 4

- ◆ Preset Curve 5 fades in slowly at the beginning of the fade.



Preset Curve 5

- ◆ Preset Curve 6 fades in even more slowly than the previous curve.



Preset Curve 6

- ◆ Preset Curve 7 silences any audio until the end of the fade.

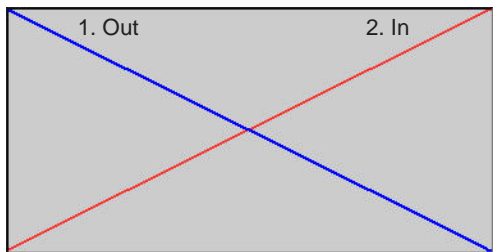


Preset Curve 7

Typical Curve Combinations

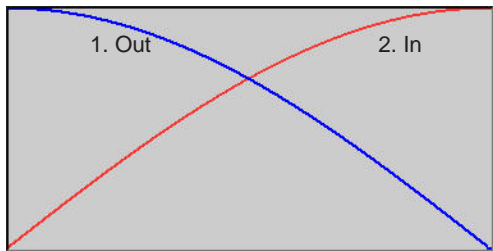
Following are the available combinations of fade-out and fade-in curves.

Linear Crossfade This is a good general purpose crossfade with a smooth, even transition between clip 1 and clip 2.



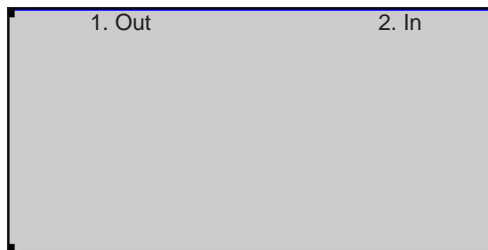
Linear Crossfade

Equal Power Crossfade This is a good general purpose crossfade useful in cases where a linear crossfade seems to create a noticeable drop in volume across the splice point.



Equal Power Crossfade

Overlap Fade This combination of curves keeps both clips at full amplitude throughout the crossfade: clip 2 “jumps in” at the beginning and clip 1 “jumps out” at the end.



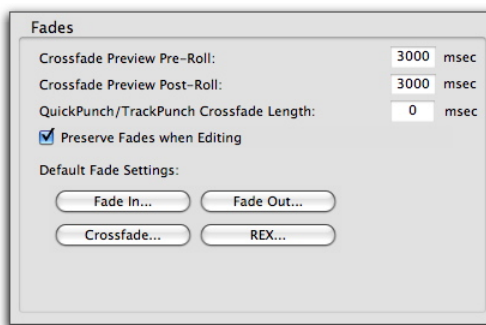
Overlap Crossfade

Fade and Crossfade Preferences

You can set default fade and crossfade settings. These settings load as your “base” settings when you use the Create Fades command, and the Fade to Start and Fade to End commands.

To set the fade and crossfade preferences:


- 1 Choose Setup > Preferences and click the Editing tab.
- 2 Set the Pre-Roll and Post-Roll times for Fade previews.



Fade preferences

- 3 Click Fade In and set the default shape for fade-ins when using the Smart Tool, then click OK.

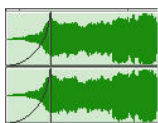
- 4 Click **Fade Out** and set the default shape for fade-outs when using the Smart Tool, then click **OK**.
- 5 Click **Crossfade** and set the default shape for crossfades when using the Smart Tool, then click **OK**.
- 6 Click **OK**.

 *To apply the default fade or crossfade shape, make an Edit selection and press Control+Start+F (Windows) or Command+Control+F (Mac).*

Creating Fades at the Beginnings and Ends of Clips

Pro Tools lets you create fade-ins and fade-outs at the beginnings and ends of clips.

With Pro Tools HD, you can also use an automatic fade-in/out option, which applies *real time* fade-ins/outs to all clips during playback automatically. For more information, see “Using AutoFades” on page 622.



Clip with a fade-in

Creating Fade-Ins and Fade-Outs

Depending on how you make the selection, you can position a fade-in or fade-out at the exact beginning or end of a clip, or position it so it extends into a blank area of the track. The length of the selection in the clip determines the length of the fade-in or fade-out.

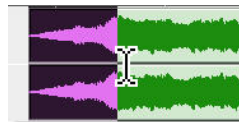
You can also fade to the beginning or end of a clip from an insertion point.

Although fades appear to be discrete clips, they cannot be separated from the clips in which they were created.

When changing tempo in a tick-based audio track, fade-ins and fade-outs remain with their parent clips. Fades maintain their absolute duration and are consequently recalculated after any tempo changes.


To create a fade-in:

- 1 Select the beginning of the clip that you want to fade in. The selection must extend to the exact beginning of the clip or a blank area prior to the clip in the track.



Selecting the beginning of a clip for a fade-in

- 2 Do one of the following:
 - Choose **Edit > Fades > Create**.
 - Press **Control+F** (Windows) or **Command+F** (Mac).

 *To apply a Fade In using the Default Fade In setting (in the Editing Preferences page), and without opening the Fades dialog, press Control+Start+F (Windows) or Command+Control+F (Mac).*

- 3 Select the fade-in curve and configure the other Fade settings.
- 4 Click the **Audition** button to audition the fade.
- 5 Adjust the curve by dragging it or by selecting a different shape from the **In Shape** pop-up menu.
- 6 Click **OK**.

The selected fade curve appears in the clip.

To create a fade-out:

- 1 Select the end of the clip that you want to fade out. The selection must extend to the exact end of the clip or a blank area after the clip in the track.



Selecting the end of a clip for a fade-out

- 2 Do one of the following:
 - Choose Edit > Fades > Create.
 - Press Control+F (Windows) or Command+F (Mac).



To apply the Fade Out using the Default Fade Out setting (in the Editing Preferences page), and without opening the Fades dialog, press Control+Start+F (Windows) or Command+Control+F (Mac).

- 3 Select the fade-out curve and configure the other Fade settings.
- 4 Click the Audition button to audition the fade.
- 5 Adjust the curve by dragging it or by selecting a different shape from the Out Shape pop-up menu.
- 6 Click OK.

Pro Tools calculates the fade and the selected fade curve appears in the clip.



Fade lengths can be resized with any of the Trim tools, including Nudge Trim commands. See “Using the Trim Tools” on page 549 and “Trimming with Nudge” on page 594.

To fade from the insertion point to a clip start point:

- 1 Place the cursor at a location in the clip.
- 2 Do one of the following:
 - Choose Edit > Fades > Fade To Start.
 - Press Alt+D (Windows) or Control+D (Mac).

The fade is applied based on the Fade In preferences (see “Fade and Crossfade Preferences” on page 618).

To fade from the insertion point to a clip end point:

- 1 Place the cursor at a location in the clip.
- 2 Do one of the following:
 - Choose Edit > Fades > Fade To End.
 - Press Alt+G (Windows) or Control+G (Mac).

The fade is applied based on the Fade Out preferences (see “Fade and Crossfade Preferences” on page 618).

Creating a Crossfade

To create a crossfade between two clips:

- 1 With the Selector tool, click at the point where you want the crossfade to begin in the first clip and drag to where you want it to end in the second clip. Crossfade selections can begin and end anywhere in their respective clips.

- 2 Do one of the following:

- Choose Edit > Fades > Create.
- Press Control+F (Windows) or Command+F (Mac).



To apply a Crossfade using the Default Crossfade setting (in the Editing Preferences), and without opening the Fades dialog, press Control+Shift+F (Windows) or Command+Control+F (Mac).

- 3 Use the view buttons to adjust the view of the crossfade. It may take a few moments to calculate the waveform display for long selections.

- 4 Select an Out Shape and an In Shape.

- 5 Select a Linking option.

- 6 Click the Audition button to audition the crossfade. For long crossfades, it may take Pro Tools a few moments to calculate and load the audio into playback RAM.

- 7 Do one of the following:

- Adjust the curves by selecting different preset shapes with the Out Shape and In Shape pop-up menus.
- Drag the Fade-In and Fade-Out curves to a custom shape. By choosing None as the Linking option, you can drag the beginning or end points of a fade curve to adjust its beginning or end point.

- 8 Click the Audition button to audition the crossfade again.

- 9 When the crossfade sounds right, click OK.



Crossfade lengths can be resized with any of the Trim tools, including Nudge Trim commands. See “Using the Trim Tools” on page 549 and “Trimming with Nudge” on page 594.

To remove a crossfade, do one of the following:

- Select the area of the track containing any crossfades you want to delete and choose Edit > Fades > Delete.
- Select the crossfade with the Time Grabber tool and press Backspace (Windows) or Delete (Mac).
- Right-click the crossfade with any of the edit tools and select Delete Fades from the pop-up menu.

To trim a crossfade:

- 1 Select the crossfade with the Time Grabber tool, or double-click it with the Selector tool.
- 2 With any of the Trim tools, trim either side of the crossfade. The crossfade is recalculated to reflect the newly trimmed length.

Crossfades on Tick-Based Audio Tracks

Crossfades are re-rendered after changing tempo in a tick-based audio track. The new crossfade is the same duration as the crossfade prior to the tempo change.

If there is not enough audio material to complete the crossfade, or if the new crossfade area falls outside of valid clip boundaries, the crossfade is removed.

Pre and Post Crossfade Selections

By making a selection that begins or ends precisely on the border of two clips, you can create “pre” or “post” crossfades. Use the Tab key to place the insertion point at the exact beginning or end of a clip.

To create a pre- or post-crossfade:

- 1 With the Selector tool, click in the track that contains the clips you want to crossfade.
- 2 Do one of the following:
 - Press Tab to move forward to the next clip boundary.
 - Press Control+Tab (Windows) or Option+Tab (Mac) to move back to the previous clip boundary.
- 3 Extend the selection by doing one of the following:
 - Shift-drag to adjust your selection, or press Shift+Tab to extend the selection forward to the next clip boundary.
 - Press Control+Shift+Tab (Windows) or Option+Shift+Tab (Mac) to extend the selection back to the previous clip boundary.
- 4 Do one of the following:
 - Choose Edit > Fades > Create.
 - Press Control+F (Windows) or Command+F (Mac).
- 5 Select a fade type and click OK.

Using AutoFades

(Pro Tools HD and Pro Tools with Complete Production Toolkit Only)

Pro Tools HD and Pro Tools with Complete Production Toolkit can automatically apply real-time fade-ins and fade-outs to all clip boundaries in the session on playback. Specify the duration (0 to 10 ms) for automatic real-time fades with the Auto Clip Fade In/Out Length preference in the Operation Preferences page). These fade-ins and fade-outs are performed during playback and do not appear in the Edit window.

 *AutoFades are not applied to AudioSuite processing.*

The automatic fade-in/out option also has an effect on Voice borrowing in a session. Whenever a lower-priority virtual track “pops thru” a silence in a higher-priority track on the same voice, a fade-in and fade-out is applied to the transition.

This feature is especially useful in post production situations such as dialogue tracking. For example, you can assign both a dialogue track and a “room tone” track with matching background to the same voice. You can then set the AutoFade option to a moderate length (4 ms or so) so that whenever a silence occurs in the dialog, playback switches smoothly to and from the background track without clicks or pops.

Using automatic fade-ins/outs saves you the trouble of editing to zero-crossings or creating numerous rendered fades in order to eliminate clicks or pops in playback. However, those clicks or pops still exist in the underlying sound file. Consequently, those anomalies still appear if the Duplicate AudioSuite plug-in or the Export Clips As Files command (from the Clip List) are used to duplicate multiple clips as a continuous file. To render these real-time auto fades to disk, choose File > Bounce to > Disk.

To set the length of automatic fade-ins/outs:

- 1 Choose Setup > Preferences and click the Operation tab.
- 2 Type a value between 0 and 10 ms for the Clip Auto Fade In/Out Length. A value of zero (the default) means that no auto-fading will occur.
- 3 Click OK. The AutoFade value is saved with the session, and is automatically applied to all free-standing clip boundaries until you change it.

Creating Fades and Crossfades in Batches

Using Batch Fades, you can create many fades at once. Select across several clips and use the Create Fades command to create crossfades for each clip transition. If your selection includes clips that already have crossfades, this feature lets you modify them.

To apply crossfades between multiple clips:

- 1 With the Selector tool, click in the first clip in which you want to create a crossfade. Make sure that the selection includes the entire clip.
- 2 Drag to extend the selection to include the last clip you want to crossfade. Make sure that the selection includes the entire clip.

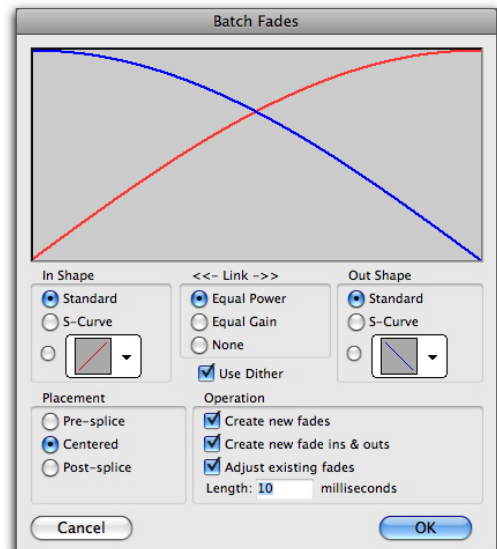


Selected clips for Batch Fades

- 3 Do one of the following:
 - Choose Edit > Fades > Create.
 - Press Command+F (Mac) or Control+F (Windows).

- 4 In the Batch Fades dialog, select whether you want to Create New Fades, Create New Fade-Ins & Outs, Adjust Existing Fades, or a combination of these options.


If you choose to create new fades *and* new fade-ins and outs, new crossfades are created at each clip boundary that is bordered by another selected clip, a fade-in is created at the start of the first clip, and a fade-out is created at the end of the last clip.



Batch Fades dialog

- 5 Select the placement of the Fades: Pre-Splice, Centered, or Post-Splice (see “About Crossfades and Curves” on page 611).
- 6 Enter a crossfade length in milliseconds.
- 7 Click OK.

Pro Tools creates the fades for all selected clips.

 *Fade lengths can be resized with any of the Trim tools, including Nudge Trim commands. See “Using the Trim Tools” on page 549 and “Trimming with Nudge” on page 594.*

Moving and Nudging Fades and Crossfades

Fades and crossfades can be moved or nudged in tracks, independently of their contributing clips. Moving or nudging fade-ins or fade-outs reveals or hides audio as the fade is moved from the edge of a contributing clip. Moving or nudging crossfades changes the overlap point of the contributing clips. Moving or nudging fades is also constrained by underlying clip boundaries.

Moving or Nudging Fades or Crossfades within Clips

To move or nudge a fade or crossfade within its contributing clips:

- 1 Select the fade or crossfade by doing one of the following:
 - Use the Time Grabber tool to select the fade.
 - Use the Selector tool to select a range that includes the fade.



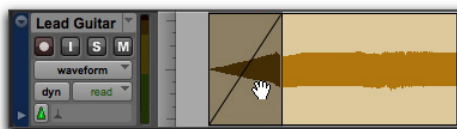
Selecting a fade with the Time Grabber

- 2 Move the fade by doing one of the following:

- Drag the fade with the Time Grabber tool to a new location on the track.
- Nudge the fade by pressing Plus (+) or Minus (–) on the numeric keypad to move the fade forward or backward on the track.



Dragging the fade with the Time Grabber



Result of moved fade

Moving Clips Containing Fades or Crossfades

When you move or nudge a clip selection that contains a fade-in, fade-out, or crossfade, the fade moves with the selection.

To move a clip selection with fades or crossfades:

- 1 Do one of the following:
 - Click a clip with the Time Grabber tool (or double-click with the Selector tool) to select the clip along with the fade (in or out).
 - Select multiple clips that include the fades and crossfades you want to move.
- 2 Move the clip selection by doing one of the following:
 - Drag the clip selection with the Grabber tool to a new location on the track.
 - Nudge the clip selection by pressing Plus (+) or Minus (–) on the numeric keypad to move the clip forward or backward on the track.



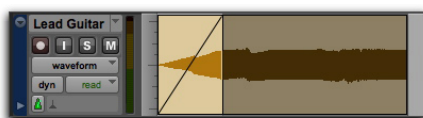
Dragging a clip with its fade

Nudging Clips Adjacent to Fade-Ins or Fade-Outs

When you nudge a clip selection adjacent to a fade-in or fade-out, but do not select the fade, the adjacent fade stretches or shrinks to maintain the fade start or end point. The amount of change depends on the amount of audio material outside the fade start or end point.

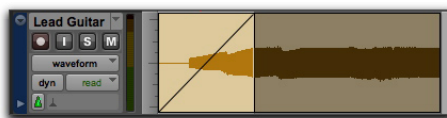
To a nudge clip without its fade:

- 1 Select the clip, but not the fade.



Selecting a clip without its fade

- 2 Nudge the clip by pressing Plus (+) or Minus (–) on the numeric keypad.



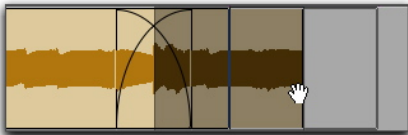
Nudging a clip without its fade

Moving Clips Adjacent to Crossfades

When you move either of the clips that contributes to a crossfade, the clips separate. The status of the fade depends on the Preserve Fades when Editing preference (in the Editing Preferences page).

To separate crossfaded clips and retain the corresponding fades:

- 1 Choose Setup > Preferences and click the Editing tab.
- 2 Select Preserve Fades when Editing.
- 3 Click OK to close the Preferences dialog.
- 4 Use the Time Grabber or Separation Grabber tool to select one of the contributing clips to a crossfade.



Selecting a clip with a crossfade

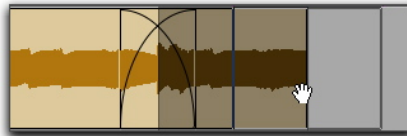
- 5 Drag the selected clip with the Grabber.



Separating clips while preserving fades

To separate crossfaded clips and remove the fade:

- 1 Choose Setup > Preferences and click the Editing tab.
- 2 Deselect Preserve Fades when Editing.
- 3 Click OK to close the Preferences dialog.
- 4 Use the Time Grabber or Separation Grabber tool to select one of the contributing clips to a crossfade.



Selecting a clip with a crossfade

- 5 Drag the selected clip with the Grabber.



Separating clips while removing fades

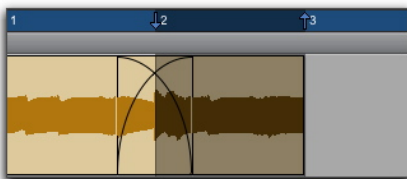
Nudging Clips Adjacent to Crossfades

When you nudge either of the clips that contributes to a crossfade, the fade stretches to preserve the relative position of the crossfade start and end points. The amount of stretch depends on the amount of overlap between the contributing clips.

If you nudge a clip beyond the boundary of available audio for the crossfade, the fade is removed.

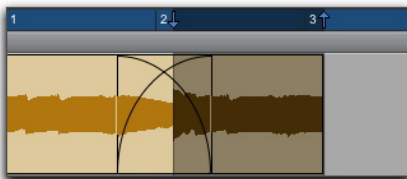
To nudge a clip and stretch its crossfade:

- 1 Use the Time Grabber tool to select one of the contributing clips to the crossfade.



Selecting a clip with a crossfade

- 2 Nudge the clip by pressing Plus (+) or Minus (–) on the numeric keypad.



Stretching the crossfade by nudging

Separating Clips that Include Fades or Crossfades

You can create clips from track material that overlaps with fades or crossfades. If the **Preserve Fades when Editing** option is enabled in the Editing Preferences page, the fades from the source clip are adjusted to the new clip.

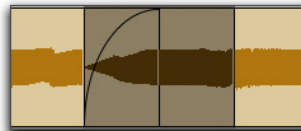
To separate a clip that overlaps with a fade or crossfade:

- 1 With the Selector tool, drag to select the material for the new clip.
- 2 Choose **Edit > Separate Clip > At Selection**.

Where your selection overlaps any fade-ins or fade-outs, the fade is trimmed to fit the selection.



Selecting material that overlaps a fade-in



Result of Separate Clip command on fade-in

Where your selection overlaps a crossfade, the crossfade is separated into a fade-out and fade-in at the selection boundary.



Selecting material that overlaps a crossfade



Result of Separate Clip command on crossfade

⚠ If the *Preserve Fades when Editing* option is not enabled in the *Editing preferences*, any fades within the selection are deleted when editing.

Trimming Clips that Include Fades or Crossfades

You can trim clips that include fades or crossfades.

Trimming a Clip to a Fade Boundary

You can trim clips that are adjacent to fade and crossfade boundaries.

To trim a clip on a fade boundary:

- With the Trim tool, click the clip boundary and drag to trim the clip. The fade remains constant and follows the new clip boundary.



Dragging a clip boundary with the Trim tool



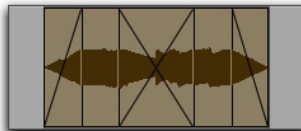
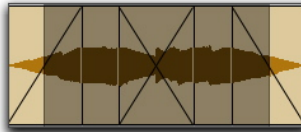
Result of trimming the clip

Trimming to a Selection Across Fades or Crossfades

You can trim clips to selections that include fades or crossfades.

To trim a clip to a selection that includes fades, do one of the following:

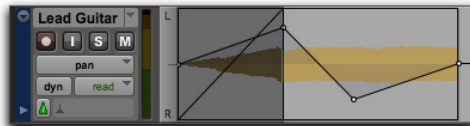
- Make a selection in the track and choose **Edit > Trim > To Selection**. You can Trim across multiple clips and fades. Affected fades are adjusted to the new clip boundaries.
- Click with the Selector in the clip and choose **Edit > Trim > Start to Insertion** or **End to Insertion**. You can trim to clip or fade boundary in the track.



Trimming to a selection across multiple fades

Fade Boundaries and Shapes Displayed in Automation View

Fade boundaries and fade shapes are shown and can be edited in Automation views, allowing for more precise viewing and editing of automation data. For more information on Automation and Automation views, see Chapter 44, “Automation.”



Fade information in Automation view